

FCC Radio Test Report

FCC ID : PPQ-WPX8988
Contains FCC ID : PPQ-WM6321
Equipment : Wireless Access Point
Brand Name : LITEON, PoEWit
Model Name : WPX8988, WPX8988-1, WAP-1
Applicant : LITE-ON Technology Corp
Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City,
23585 Taiwan
Manufacturer : LITE-ON Network Communication (Dongguan) Limited
30#Keji Rd., Yin Hu Industrial Area, Qingxi
Town, DongGuan City, Guangdong, China
Standard : 47 CFR FCC Part 15.247

The product was received on Oct. 12, 2021, and testing was started from Oct. 14, 2021 and completed on Nov. 20, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Testing Applied Standards9

1.3 Testing Location Information9

1.4 Measurement Uncertainty9

2 TEST CONFIGURATION OF EUT.....10

2.1 Test Channel Mode 10

2.2 The Worst Case Measurement Configuration11

2.3 Accessories12

2.4 Support Equipment.....13

2.5 Test Setup Diagram 15

3 TRANSMITTER TEST RESULT17

3.1 AC Power-line Conducted Emissions17

3.2 20dB Bandwidth and Carrier Frequency Separation.....19

3.3 Maximum Conducted Output Power20

3.4 Number of Hopping Frequencies and Hopping Bandedge21

3.5 Time of Occupancy (Dwell Time)22

3.6 Emissions in Non-restricted Frequency Bands23

3.7 Emissions in Restricted Frequency Bands.....24

4 TEST EQUIPMENT AND CALIBRATION DATA.....27

APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS

APPENDIX B. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION

APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER

APPENDIX D. TEST RESULTS OF NUMBER OF HOPPING FREQUENCIES AND HOPPING BANDEDGE

APPENDIX E. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)

APPENDIX F. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

APPENDIX G. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS

APPENDIX H. TEST PHOTOS

PHOTOGRAPHS OF EUT V01



Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	20dB Bandwidth	PASS	-
3.2	15.247(a)	Carrier Frequency Separation	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(a)	Number of Hopping Frequencies and Hopping Bandedge	PASS	-
3.5	15.247(a)	Time of Occupancy (Dwell Time)	PASS	-
3.6	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.7	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
None

Reviewed by: Sam Tsai

Report Producer: Jenny Yang

1 General Description

1.1 Information

The EUT contains certified module FCC ID: PPQ-WM6321 for WLAN 5G Radio 3.

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Version	Ch. Frequency (MHz)	Channel Number
2400-2483.5	BR / EDR	2402-2480	0-78 [79]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-BR(1Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(2Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(3Mbps)	1	1TX

Note:

- ◆ Bluetooth BR uses a GFSK (1Mbps).
- ◆ Bluetooth EDR uses a combination of $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).
- ◆ Bluetooth BR/EDR uses as a system using FHSS modulation.
- ◆ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Group	Ant.	Brand Name	Model Name	Ant. Type	Connector	Radio
1	5	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	2.4G R1 + 5G R0
	6	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
	7	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
	8	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
2	1	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	5G R2
	2	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
	3	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
	4	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
3	9	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	5G R3
	10	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	
4	11	LYNwave	MLX20X-126AA0-B	PIFA	I-Pex	BT



Group	Ant.	Port	Gain (dBi)		
			2.4G	5G	BT
1	5	1	4.1	6.2	-
	6	2	4.5	6.3	-
	7	3	4.4	6.6	-
	8	4	5	5.9	-
2	1	5	-	5.9	-
	2	6	-	5.2	-
	3	7	-	4.1	-
	4	8	-	4.6	-
3	9	1	-	5.3	-
	10	2	-	5.6	-
4	11	1	-	-	5.1

Note 1: The EUT has eleven antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (4TX/4RX)

Ant. 5 (port 1), Ant. 6 (port 2), Ant. 7 (port 3) and Ant. 8 (port 4) could transmit/receive simultaneously.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Only Ant. 11 (port 1) can be used as transmitting/receiving antenna.

For 5GHz function:

For IEEE 802.11 a/n/ac mode (2TX/2RX) **(Radio 3)**

Ant. 9 (port 1) and Ant. 10 (port 2) could transmit/receive simultaneously.

For IEEE 802.11 a/n/ac/ax mode (4TX/4RX) **(Radio 0, Radio 2)**

Ant. 5 (port 1), Ant. 6 (port 2), Ant. 7 (port 3) and Ant. 8 (port 4) could transmit/receive simultaneously.

Ant. 1 (port 5), Ant. 2 (port 6), Ant. 3 (port 7) and Ant. 4 (port 8) could transmit/receive simultaneously.

For IEEE 802.11 a/n/ac/ax mode (8TX/8RX) **(Radio 0+2)**

Ant. 5 (port 1), Ant. 6 (port 2), Ant. 7 (port 3), Ant. 8 (port 4), Ant. 1 (port 5), Ant. 2 (port 6), Ant. 3(port 7), and Ant. 4 (port 8) could transmit/receive simultaneously.



1.1.3 EUT Information

Operational Condition	
EUT Power Type	From AC Adapter / PoE
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint <input checked="" type="checkbox"/> Point-to-point
Type of EUT	
<input checked="" type="checkbox"/> Stand-alone	
<input type="checkbox"/> Combined (EUT where the radio part is fully integrated within another device)	
Combined Equipment - Brand Name / Model No.:	...
<input type="checkbox"/> Plug-in radio (EUT intended for a variety of host systems)	
Host System - Brand Name / Model No.:	...
<input type="checkbox"/> Other:	

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-BR(1Mbps)	0.464	3.33	2.904m	1k
BT-EDR(2Mbps)	0.437	3.6	2.913m	1k
BT-EDR(3Mbps)	0.466	3.32	2.915m	1k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.1.5 Table for Multiple Listing

SKU	Model Name	Radio spec.	Radio 0 filter source
SKU 1	WPX8988	Radio 0+1+2+3+BT	Radio 0 filter Main Source CIROCOMM J5697E
	WPX8988-1	Radio 0+1+2+BT	
	WAP-1	Radio 0+1+2+3+BT	
SKU 2	WPX8988	Radio 0+1+2+3+BT	Radio 0 filter 2nd Source WALSIN WDBPF5697360KAT
	WPX8988-1	Radio 0+1+2+BT	
	WAP-1	Radio 0+1+2+3+BT	

Brand Name	Model Name	Note
LITEON	WPX8988-1	<ol style="list-style-type: none"> 1. Remove DVDD33_PCIE and VDD_3P3_radio power net: R137 and R7093 2. Remove PCIe connector and level shifter: J1, C7252, C7268, Q26, Q27, and Q50. And 2 screw holes: J13 and J14. 3. Remove sniffer: LED control: Q7 and R7232 4. Remove 2pcs 5GHz Sniffer Antennas 5. Remove PCIE Sniffer Radio 3 (QCA9886, 802.11a/b/g/n/ac, 5G Only)
	WPX8988	The difference of model is in sales marketing.
PoEWit	WAP-1	

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- ◆ KDB 558074 D01 v05r02
- ◆ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/> Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Daniel Lin	21.5~21.8°C / 62~65%	30/Oct/2021 - 20/Nov/2021
RF Conducted	TH01-HY	Johnny Yu	20.1~26.9°C / 50~60%	22/Oct/2021~17/Nov/2021
<input checked="" type="checkbox"/> Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH09-HY	Ryan Hsiao	22.5~24.7°C / 42~59%	14/Oct/2021~26/Oct/2021

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT




2.1 Test Channel Mode

Test Software Version	Dos6.1
Mode	Power Setting
BT-BR(1Mbps)	-
2402MHz	0x08
2440MHz	0x08
2480MHz	0x08
BT-EDR(2Mbps)	-
2402MHz	0x08
2440MHz	0x08
2480MHz	0x08
BT-EDR(3Mbps)	-
2402MHz	0x08
2440MHz	0x08
2480MHz	0x08

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Adapter mode
2	PoE mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power Number of Hopping Frequencies Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains <input checked="" type="checkbox"/> Non-adaptive frequency hopping systems (Non-AFH) <input type="checkbox"/> adaptive frequency hopping systems (AFH)

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Adapter mode		
2	PoE mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	WLAN 2.4GHz (Radio 1) + WLAN 5GHz 4TX (Radio 0) + WLAN 5GHz 4TX (Radio 2) + WLAN 5GHz (Radio 3) + Bluetooth
2	WLAN 2.4GHz (Radio 1) + WLAN 5GHz 8TX (Radio 0 + Radio 2) + WLAN 5GHz (Radio 3) + Bluetooth

Refer to Sporton Test Report No.: FA192716 for Co-location RF Exposure Evaluation.

2.3 Accessories

Accessories				
AC Adapter 1(US Plug)	Brand Name	APD	Model Name	WA-36N12FU
	Manufacturer	-	SN	-
	Power Rating	I/P: 100-240 Vac, 0.9 A, O/P: 12 Vdc, 3A		
	Power Cord	1.8 meter, non-shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power cable	Power sync	PW-GPC180-3	-	-
2	PoE	Cambium	NET-P60-56IN	-	-
3	RJ45 Cable	Power Sync	CAT-6E-10	-	-
4	RJ45 Cable	Power Sync	CAT-6E-01	-	-
5	RJ45 Cable	Power Sync	CAT-6E-01	-	-
6	RJ45 Cable	Power Sync	CAT-6E-01	-	-
7	PoE (Remote)	Cambium	NET-P60-56IN	-	-
8	Client (Remote)	-	-	-	Note 1
9	Notebook (Remote)	HP	E5220	-	-
10	RJ45 Cable (Remote)	Power Sync	CAT-6E-01	-	-

Note 1: Provided by Customer

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	CBT	-	-
2	Adapter for NB	DELL	-	-	-
3	PoE	HP	PD-9001GR/AT/AC	-	-
4	Client	-	-	-	Note 1
5	Notebook	HP	E5220	-	-

Note 1: Provided by Customer

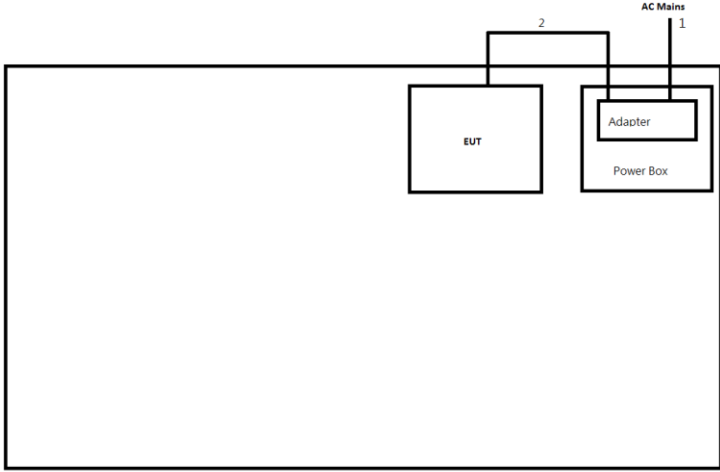


Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power cable	Power sync	PW-GPC180-3	-	-
2	PoE	Cambium	NET-P60-56IN	-	-
3	RJ45 Cable	Power Sync	CAT-6E-10	-	-
4	RJ45 Cable	Power Sync	CAT-6E-01	-	-
5	RJ45 Cable	Power Sync	CAT-6E-01	-	-
6	RJ45 Cable	Power Sync	CAT-6E-01	-	-
7	PoE (Remote)	Cambium	NET-P60-56IN	-	-
8	Client (Remote)	-	-	-	Note 1
9	Notebook (Remote)	HP	E5220	-	-
10	RJ45 Cable (Remote)	Power Sync	CAT-6E-01	-	-
11	Notebook (Remote)	HP	E5220	-	-

Note 1: Provided by Customer

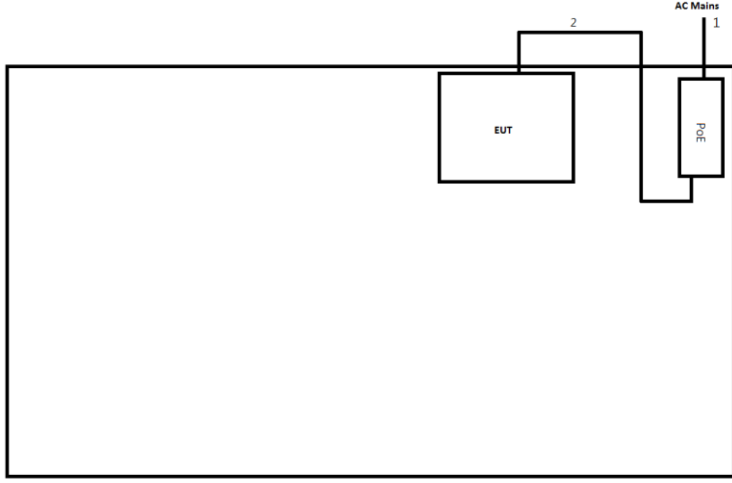
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (Adapter mode)



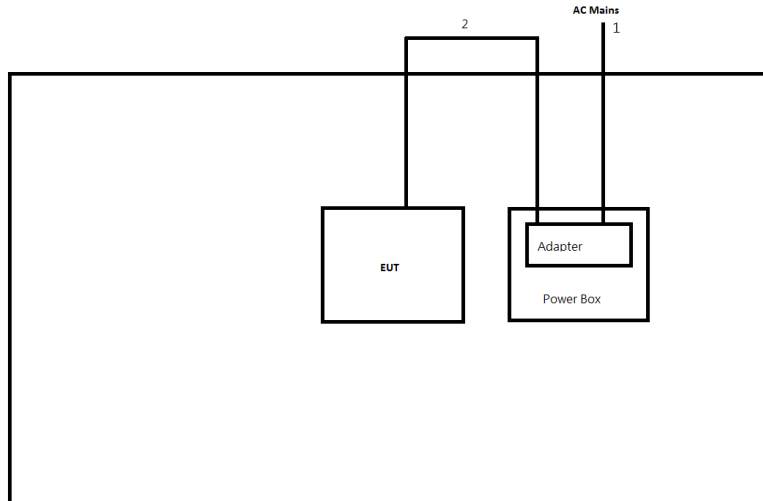
Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.8	-

Test Setup Diagram – AC Line Conducted Emission Test (PoE mode)



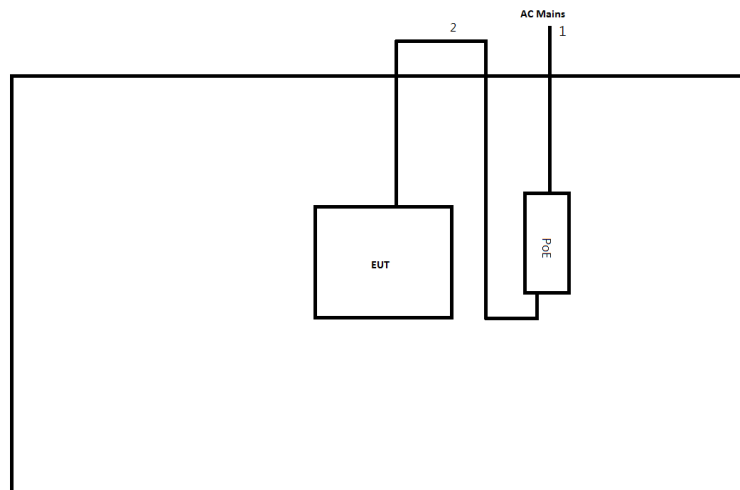
Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	RJ45 Cable	No	10.0	-

Test Setup Diagram - Radiated Test (Adapter mode)



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-

Test Setup Diagram - Radiated Test (PoE mode)



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.8	-



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

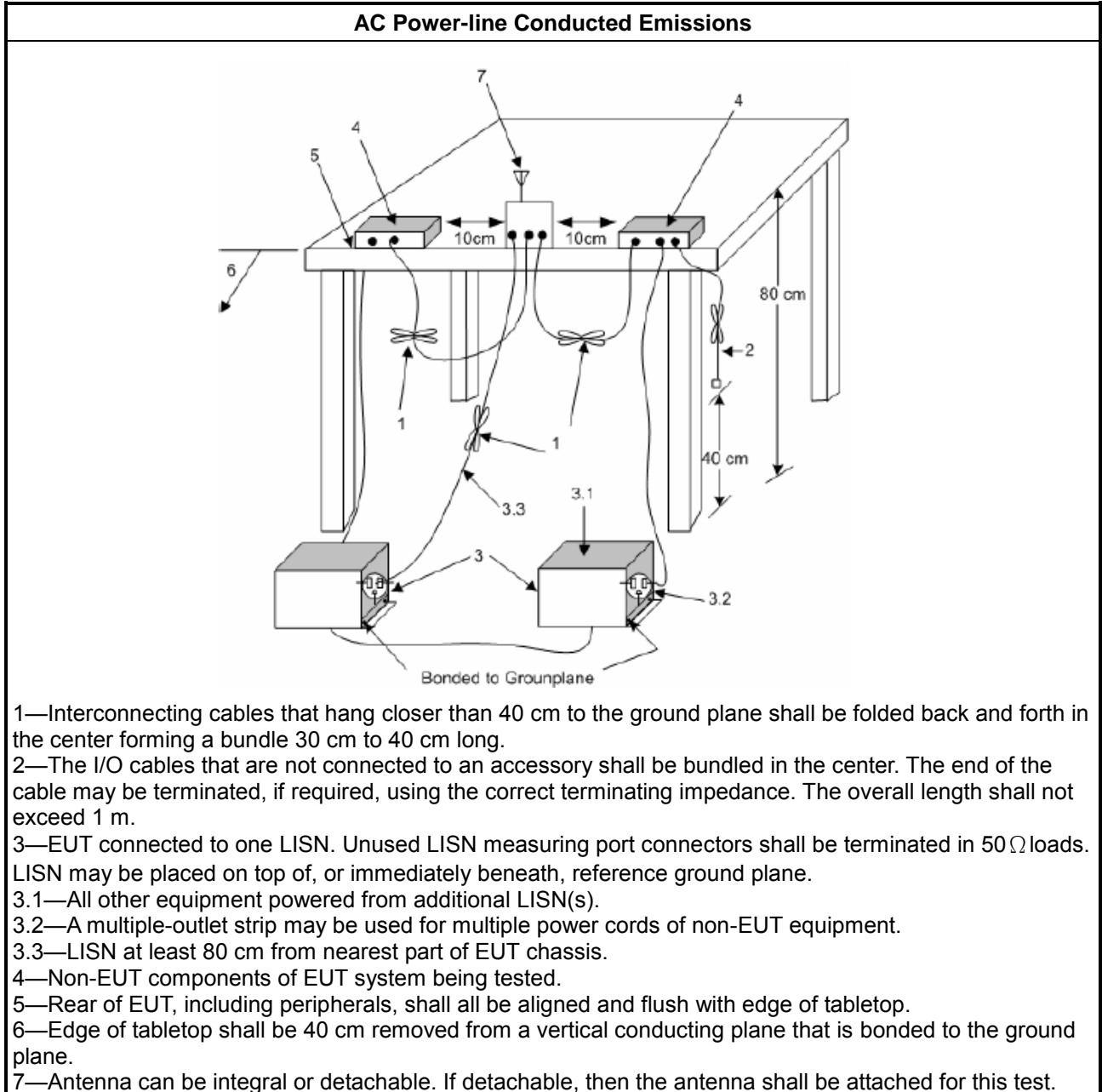
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
<ul style="list-style-type: none"> 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	<ul style="list-style-type: none"> $75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3,25 kHz).
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

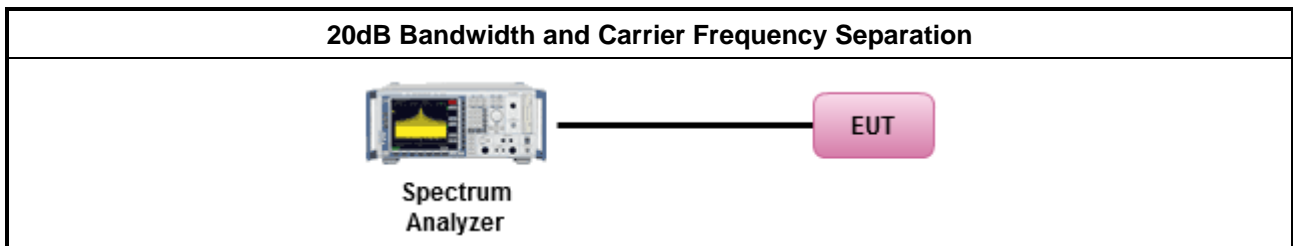
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 6.9.2 for 20 dB bandwidth measurement.
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
<ul style="list-style-type: none"> 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> $N \geq 75$; Power 30dBm; EIRP 36dBm
	<ul style="list-style-type: none"> $75 > N \geq 15$; Power 21dBm; EIRP 27dBm
N: Number of Hopping Frequencies	

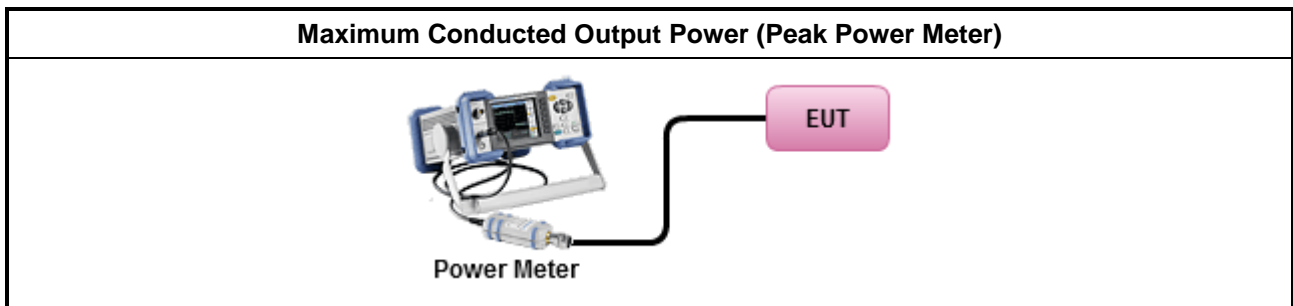
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Number of Hopping Frequencies and Hopping Bandedge

3.4.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> ▪ $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	<ul style="list-style-type: none"> ▪ $75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS : Hopping Channel Separation	

3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

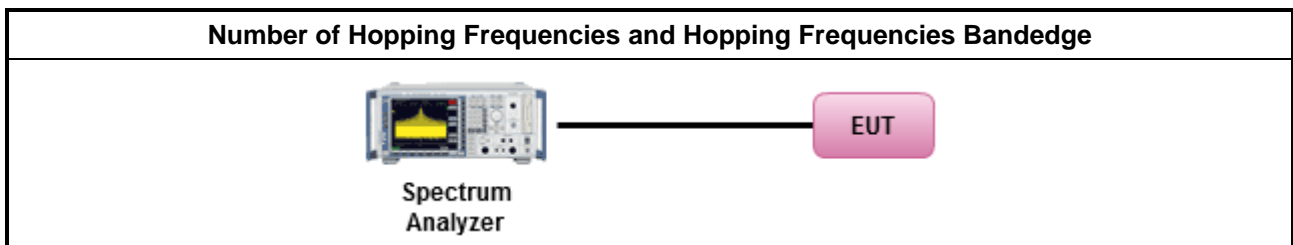
3.4.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.4 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.
<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.

3.4.5 Test Setup



3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

3.5 Time of Occupancy (Dwell Time)

3.5.1 Time of Occupancy (Dwell Time) Limit

Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems	
<ul style="list-style-type: none"> 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> $N \geq 75$; 0.4s in $N \times 0.4$ period
	<ul style="list-style-type: none"> $75 > N \geq 15$; 0.4s in $N \times 0.4$ period
N: Number of Hopping Frequencies	

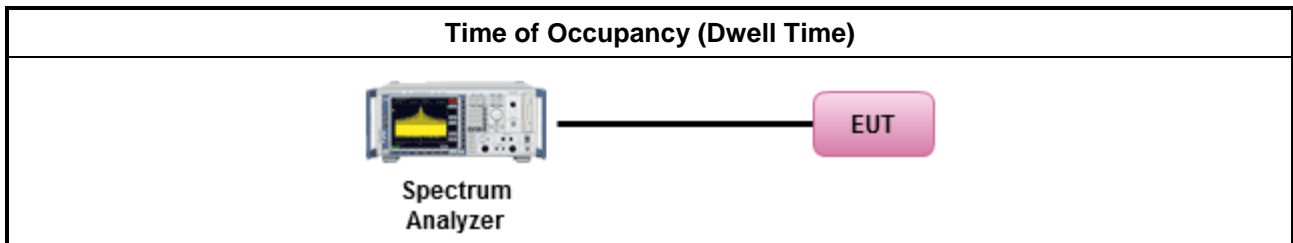
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement. 	
<ul style="list-style-type: none"> Bluetooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum dwell time and maximum duty cycle. 	
	<ul style="list-style-type: none"> The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $5/1600$ seconds, or 3.125ms. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel.

3.5.4 Test Setup



3.5.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix E

3.6 Emissions in Non-restricted Frequency Bands

3.6.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.	

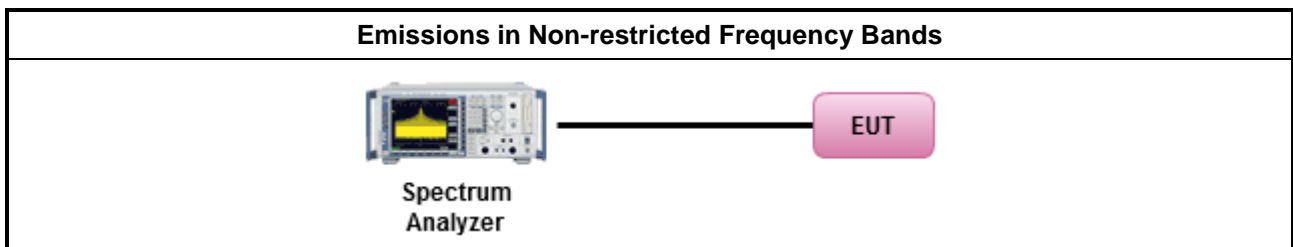
3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.

3.6.4 Test Setup



3.6.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix F

3.7 Emissions in Restricted Frequency Bands

3.7.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

3.7.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

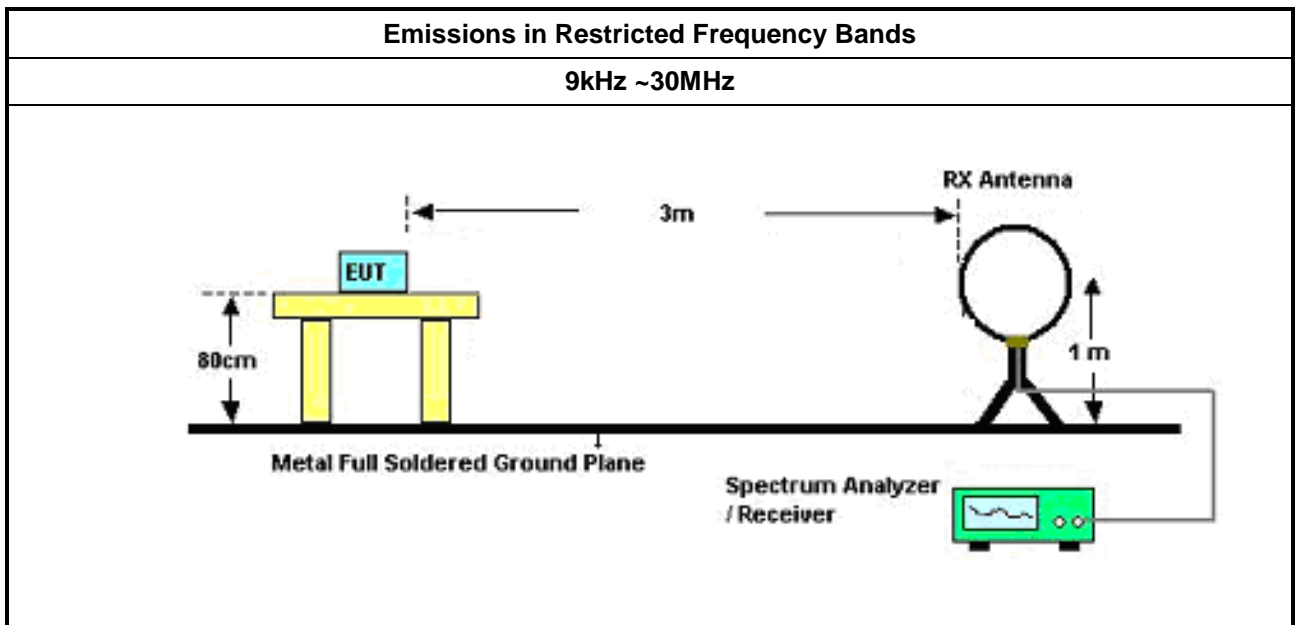
Test Method	
<ul style="list-style-type: none"> The average emission levels shall be measured in [hopping duty factor]. 	
<ul style="list-style-type: none"> Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 	
<ul style="list-style-type: none"> For the transmitter unwanted emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.
	<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.
	<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.
<ul style="list-style-type: none"> KDB 414788 Open-Field Test Sites and Chamber Correlation Justification. 	
<ul style="list-style-type: none"> Based on FCC 15.31(f)(2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field. 	
<ul style="list-style-type: none"> Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result. 	

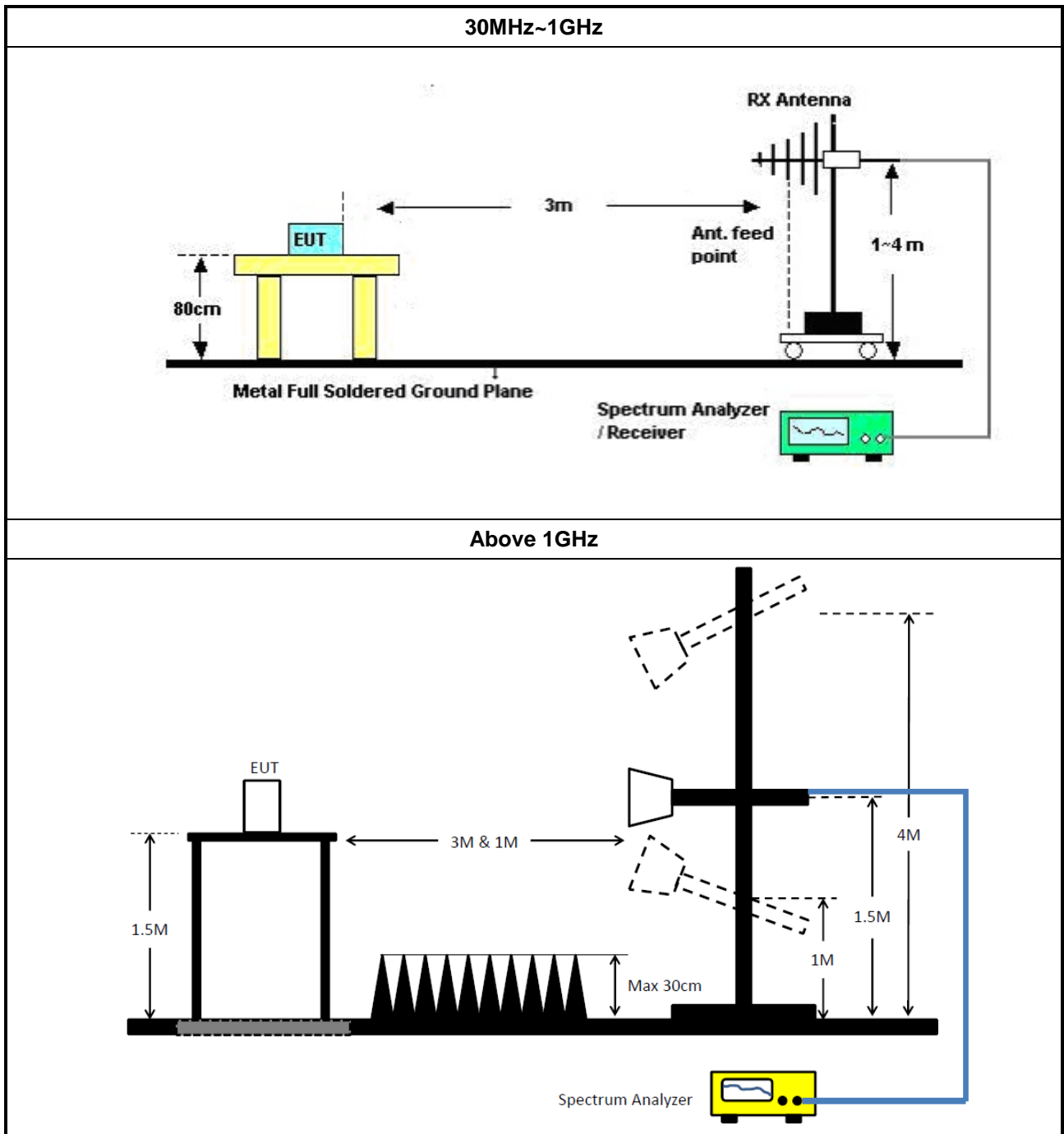
3.7.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.7.5 Test Setup





3.7.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.7.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	21/May/2021	20/May/2022
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
LISN	R&S	ENV216	100003	9kHz ~ 30MHz	15/Dec/2020	14/Dec/2021
RF Cable 5m	TITAN	TITAN	CO04-cable-01	0.1MHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	15/Sep/2021	14/Sep/2022

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	30/Mar/2021	29/Mar/2022
Signal Generator	Keysight	N5171B	MY53051240	9kHz~6GHz	23/Nov/2020	22/Nov/2021
Pulse Sensor	Anritsu	MA2411B	0917017	300MHz~40GHz	23/Feb/2021	22/Feb/2022
Power Meter	Anritsu	ML2495A	0949003	300MHz~40GHz	23/Feb/2021	22/Feb/2022



Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz 3m	26/Mar/2021	25/Mar/2022
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	18/Mar/2021	17/Mar/2022
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	13/Aug/2021	12/Aug/2022
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	12/Apr/2021	11/Apr/2022
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	23/Jul/2021	22/Jul/2022
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MT J6102-05	35418 & 3	30MHz~1GHz	04/Sep/2021	03/Sep/2022
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	18/May/2021	17/May/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/4	9kHz~30MHz	30/Aug/2021	29/Aug/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/4	30MHz~1GHz	09/Feb/2021	08/Feb/2022
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	CB009	1GHz~40GHz	13/Aug/2021	12/Aug/2022
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	11/Mar/2021	10/Mar/2022
Microwave Preamplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	09/Mar/2021	08/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	153.636k	51.58	65.81	-14.23	Line
Mode 2	Pass	AV	18.863M	40.55	50.00	-9.45	Neutral

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	153.636k	51.58	65.81	-14.23	Line	-
Mode 1	Pass	AV	153.636k	34.12	55.81	-21.69	Line	-
Mode 1	Pass	QP	167.071k	48.92	65.10	-16.18	Line	-
Mode 1	Pass	AV	167.071k	31.78	55.10	-23.32	Line	-
Mode 1	Pass	QP	185.344k	42.25	64.24	-21.99	Line	-
Mode 1	Pass	AV	185.344k	28.89	54.24	-25.35	Line	-
Mode 1	Pass	QP	333.299k	36.59	59.37	-22.78	Line	-
Mode 1	Pass	AV	333.299k	35.03	49.37	-14.34	Line	-
Mode 1	Pass	QP	3.584M	22.19	56.00	-33.81	Line	-
Mode 1	Pass	AV	3.584M	17.65	46.00	-28.35	Line	-
Mode 1	Pass	QP	12.355M	19.63	60.00	-40.37	Line	-
Mode 1	Pass	AV	12.355M	17.16	50.00	-32.84	Line	-
Mode 1	Pass	QP	154.868k	51.44	65.73	-14.29	Neutral	-
Mode 1	Pass	AV	154.868k	33.27	55.73	-22.46	Neutral	-
Mode 1	Pass	QP	180.236k	46.65	64.47	-17.82	Neutral	-
Mode 1	Pass	AV	180.236k	29.69	54.47	-24.78	Neutral	-
Mode 1	Pass	QP	338.664k	40.06	59.23	-19.17	Neutral	-
Mode 1	Pass	AV	338.664k	33.62	49.23	-15.61	Neutral	-
Mode 1	Pass	QP	353.867k	37.93	58.87	-20.94	Neutral	-
Mode 1	Pass	AV	353.867k	31.62	48.87	-17.25	Neutral	-
Mode 1	Pass	QP	3.403M	23.22	56.00	-32.78	Neutral	-
Mode 1	Pass	AV	3.403M	16.75	46.00	-29.25	Neutral	-
Mode 1	Pass	QP	6.243M	19.85	60.00	-40.15	Neutral	-
Mode 1	Pass	AV	6.243M	17.34	50.00	-32.66	Neutral	-
Mode 2	Pass	QP	155.487k	49.71	65.69	-15.98	Line	-
Mode 2	Pass	AV	155.487k	34.30	55.69	-21.39	Line	-
Mode 2	Pass	QP	183.137k	45.70	64.34	-18.64	Line	-
Mode 2	Pass	AV	183.137k	31.55	54.34	-22.79	Line	-
Mode 2	Pass	QP	208.092k	41.23	63.28	-22.05	Line	-
Mode 2	Pass	AV	208.092k	28.21	53.28	-25.07	Line	-
Mode 2	Pass	QP	471.701k	34.34	56.48	-22.14	Line	-
Mode 2	Pass	AV	471.701k	31.01	46.48	-15.47	Line	-
Mode 2	Pass	QP	1.181M	26.90	56.00	-29.10	Line	-
Mode 2	Pass	AV	1.181M	22.49	46.00	-23.51	Line	-
Mode 2	Pass	QP	18.863M	41.71	60.00	-18.29	Line	-
Mode 2	Pass	AV	18.863M	40.05	50.00	-9.95	Line	-
Mode 2	Pass	QP	158.622k	49.28	65.54	-16.26	Neutral	-
Mode 2	Pass	AV	158.622k	34.37	55.54	-21.17	Neutral	-
Mode 2	Pass	QP	182.408k	45.55	64.37	-18.82	Neutral	-
Mode 2	Pass	AV	182.408k	30.69	54.37	-23.68	Neutral	-
Mode 2	Pass	QP	208.092k	41.13	63.28	-22.15	Neutral	-
Mode 2	Pass	AV	208.092k	27.31	53.28	-25.97	Neutral	-
Mode 2	Pass	QP	447.846k	34.78	56.92	-22.14	Neutral	-

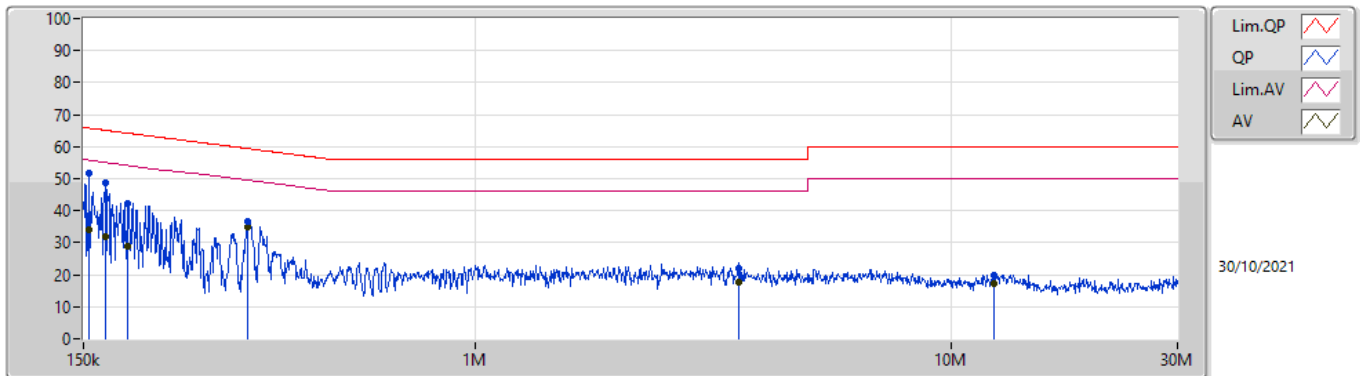


Conducted Emissions at Powerline

Appendix A

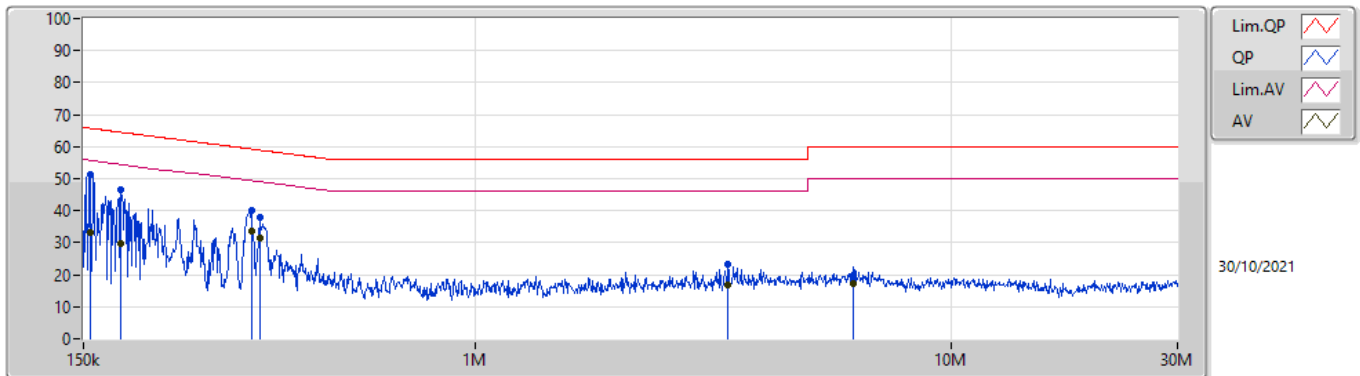
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	AV	447.846k	31.67	46.92	-15.25	Neutral	-
Mode 2	Pass	QP	1.205M	23.75	56.00	-32.25	Neutral	-
Mode 2	Pass	AV	1.205M	19.66	46.00	-26.34	Neutral	-
Mode 2	Pass	QP	18.863M	42.30	60.00	-17.70	Neutral	-
Mode 2	Pass	AV	18.863M	40.55	50.00	-9.45	Neutral	-

Conducted Emissions at Powerline_Mode 1



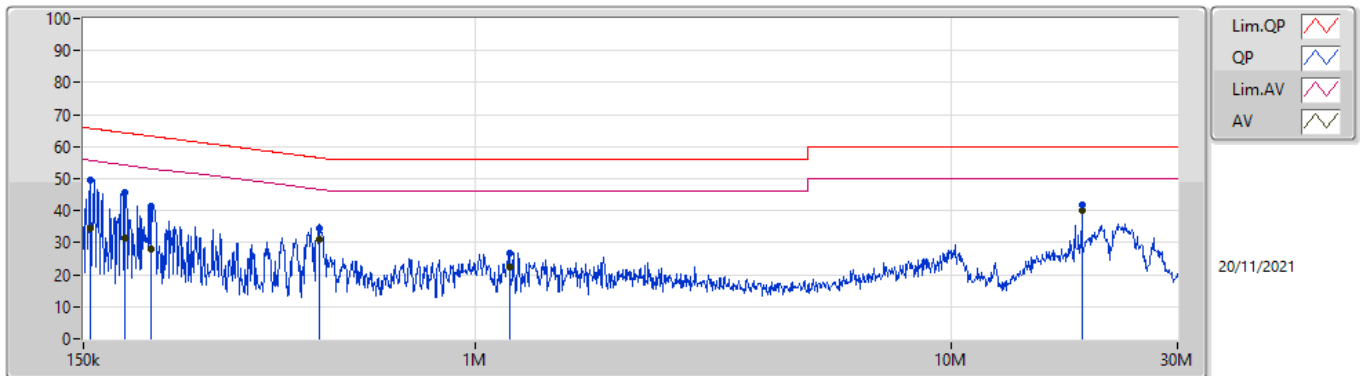
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	153.636k	51.58	65.81	-14.23	19.62	Line	-	31.96	9.69	0.04	9.89			
AV	153.636k	34.12	55.81	-21.69	19.62	Line	-	14.50	9.69	0.04	9.89			
QP	167.071k	48.92	65.10	-16.18	19.62	Line	-	29.30	9.69	0.04	9.89			
AV	167.071k	31.78	55.10	-23.32	19.62	Line	-	12.16	9.69	0.04	9.89			
QP	185.344k	42.25	64.24	-21.99	19.61	Line	-	22.64	9.68	0.04	9.89			
AV	185.344k	28.89	54.24	-25.35	19.61	Line	-	9.28	9.68	0.04	9.89			
QP	333.299k	36.59	59.37	-22.78	19.61	Line	-	16.98	9.67	0.05	9.89			
AV	333.299k	35.03	49.37	-14.34	19.61	Line	-	15.42	9.67	0.05	9.89			
QP	3.584M	22.19	56.00	-33.81	19.71	Line	-	2.48	9.69	0.13	9.89			
AV	3.584M	17.65	46.00	-28.35	19.71	Line	-	-2.06	9.69	0.13	9.89			
QP	12.355M	19.63	60.00	-40.37	19.82	Line	-	-0.19	9.70	0.23	9.89			
AV	12.355M	17.16	50.00	-32.84	19.82	Line	-	-2.66	9.70	0.23	9.89			

Conducted Emissions at Powerline_Mode 1



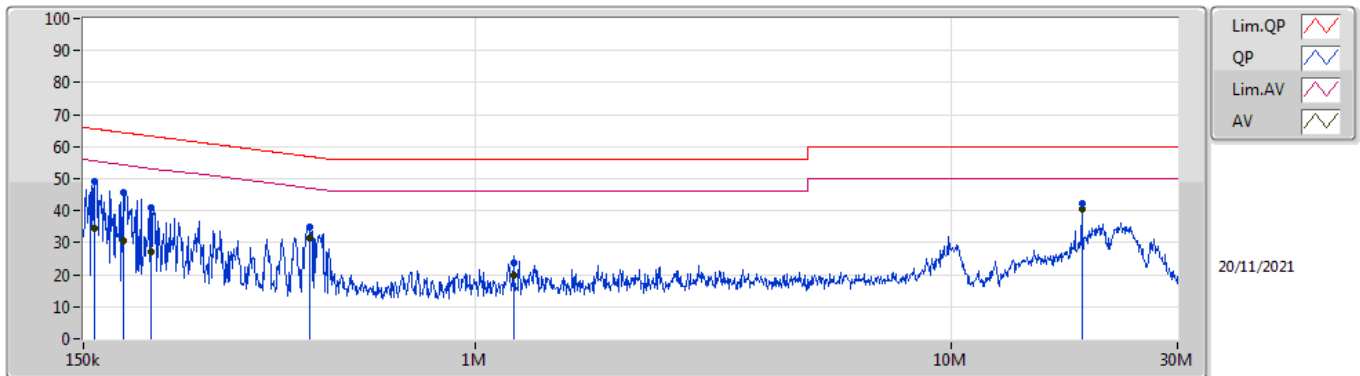
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	154.868k	51.44	65.73	-14.29	19.62	Neutral	-	31.82	9.69	0.04	9.89
AV	154.868k	33.27	55.73	-22.46	19.62	Neutral	-	13.65	9.69	0.04	9.89
QP	180.236k	46.65	64.47	-17.82	19.61	Neutral	-	27.04	9.68	0.04	9.89
AV	180.236k	29.69	54.47	-24.78	19.61	Neutral	-	10.08	9.68	0.04	9.89
QP	338.664k	40.06	59.23	-19.17	19.62	Neutral	-	20.44	9.67	0.06	9.89
AV	338.664k	33.62	49.23	-15.61	19.62	Neutral	-	14.00	9.67	0.06	9.89
QP	353.867k	37.93	58.87	-20.94	19.62	Neutral	-	18.31	9.67	0.06	9.89
AV	353.867k	31.62	48.87	-17.25	19.62	Neutral	-	12.00	9.67	0.06	9.89
QP	3.403M	23.22	56.00	-32.78	19.71	Neutral	-	3.51	9.69	0.13	9.89
AV	3.403M	16.75	46.00	-29.25	19.71	Neutral	-	-2.96	9.69	0.13	9.89
QP	6.243M	19.85	60.00	-40.15	19.77	Neutral	-	0.08	9.71	0.17	9.89
AV	6.243M	17.34	50.00	-32.66	19.77	Neutral	-	-2.43	9.71	0.17	9.89

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	155.487k	49.71	65.69	-15.98	19.62	Line	-	30.09	9.69	0.04	9.89
AV	155.487k	34.30	55.69	-21.39	19.62	Line	-	14.68	9.69	0.04	9.89
QP	183.137k	45.70	64.34	-18.64	19.61	Line	-	26.09	9.68	0.04	9.89
AV	183.137k	31.55	54.34	-22.79	19.61	Line	-	11.94	9.68	0.04	9.89
QP	208.092k	41.23	63.28	-22.05	19.61	Line	-	21.62	9.68	0.04	9.89
AV	208.092k	28.21	53.28	-25.07	19.61	Line	-	8.60	9.68	0.04	9.89
QP	471.701k	34.34	56.48	-22.14	19.62	Line	-	14.72	9.67	0.06	9.89
AV	471.701k	31.01	46.48	-15.47	19.62	Line	-	11.39	9.67	0.06	9.89
QP	1.181M	26.90	56.00	-29.10	19.65	Line	-	7.25	9.68	0.08	9.89
AV	1.181M	22.49	46.00	-23.51	19.65	Line	-	2.84	9.68	0.08	9.89
QP	18.863M	41.71	60.00	-18.29	19.96	Line	-	21.75	9.78	0.29	9.89
AV	18.863M	40.05	50.00	-9.95	19.96	Line	-	20.09	9.78	0.29	9.89

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	158.622k	49.28	65.54	-16.26	19.62	Neutral	-	29.66	9.69	0.04	9.89
AV	158.622k	34.37	55.54	-21.17	19.62	Neutral	-	14.75	9.69	0.04	9.89
QP	182.408k	45.55	64.37	-18.82	19.61	Neutral	-	25.94	9.68	0.04	9.89
AV	182.408k	30.69	54.37	-23.68	19.61	Neutral	-	11.08	9.68	0.04	9.89
QP	208.092k	41.13	63.28	-22.15	19.61	Neutral	-	21.52	9.68	0.04	9.89
AV	208.092k	27.31	53.28	-25.97	19.61	Neutral	-	7.70	9.68	0.04	9.89
QP	447.846k	34.78	56.92	-22.14	19.62	Neutral	-	15.16	9.67	0.06	9.89
AV	447.846k	31.67	46.92	-15.25	19.62	Neutral	-	12.05	9.67	0.06	9.89
QP	1.205M	23.75	56.00	-32.25	19.66	Neutral	-	4.09	9.68	0.09	9.89
AV	1.205M	19.66	46.00	-26.34	19.66	Neutral	-	0.00	9.68	0.09	9.89
QP	18.863M	42.30	60.00	-17.70	20.09	Neutral	-	22.21	9.91	0.29	9.89
AV	18.863M	40.55	50.00	-9.45	20.09	Neutral	-	20.46	9.91	0.29	9.89



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-BR(1Mbps)	937.5k	885.807k	886KF1D	932.5k	855.822k
BT-EDR(2Mbps)	1.339M	1.266M	1M27G1D	1.316M	1.211M
BT-EDR(3Mbps)	1.316M	1.247M	1M25G1D	1.273M	1.209M

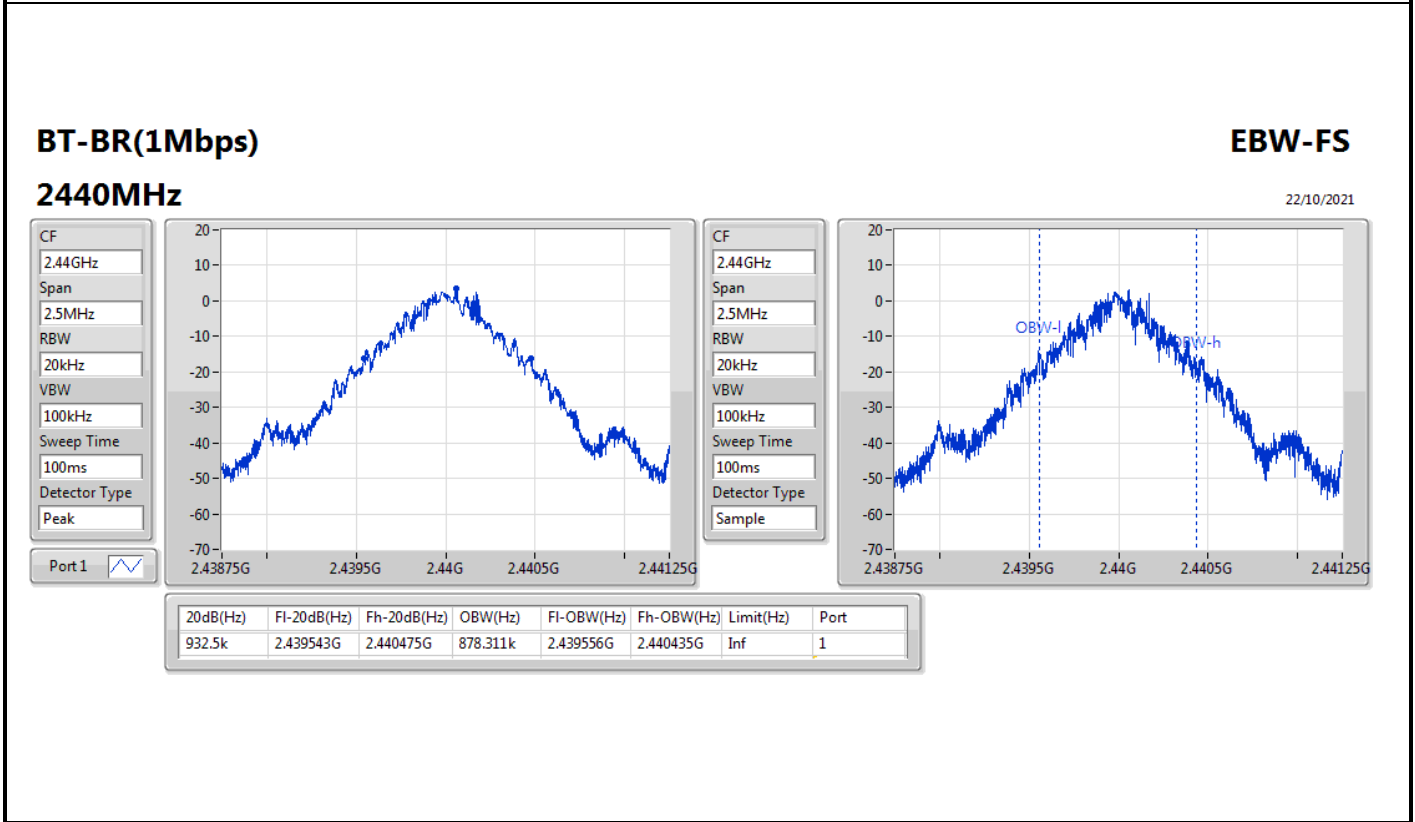
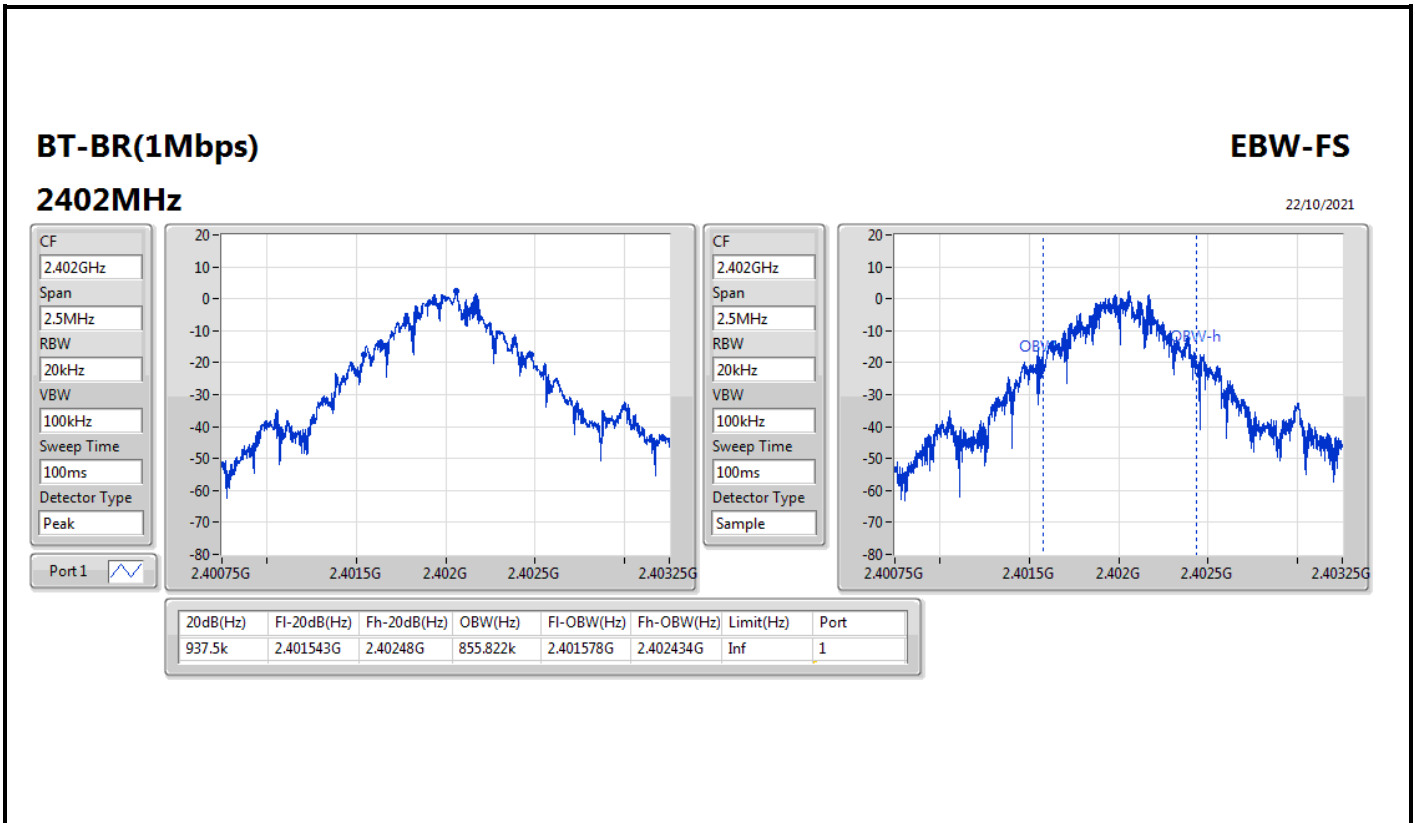
Max-N dB = Maximum 20dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 20dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

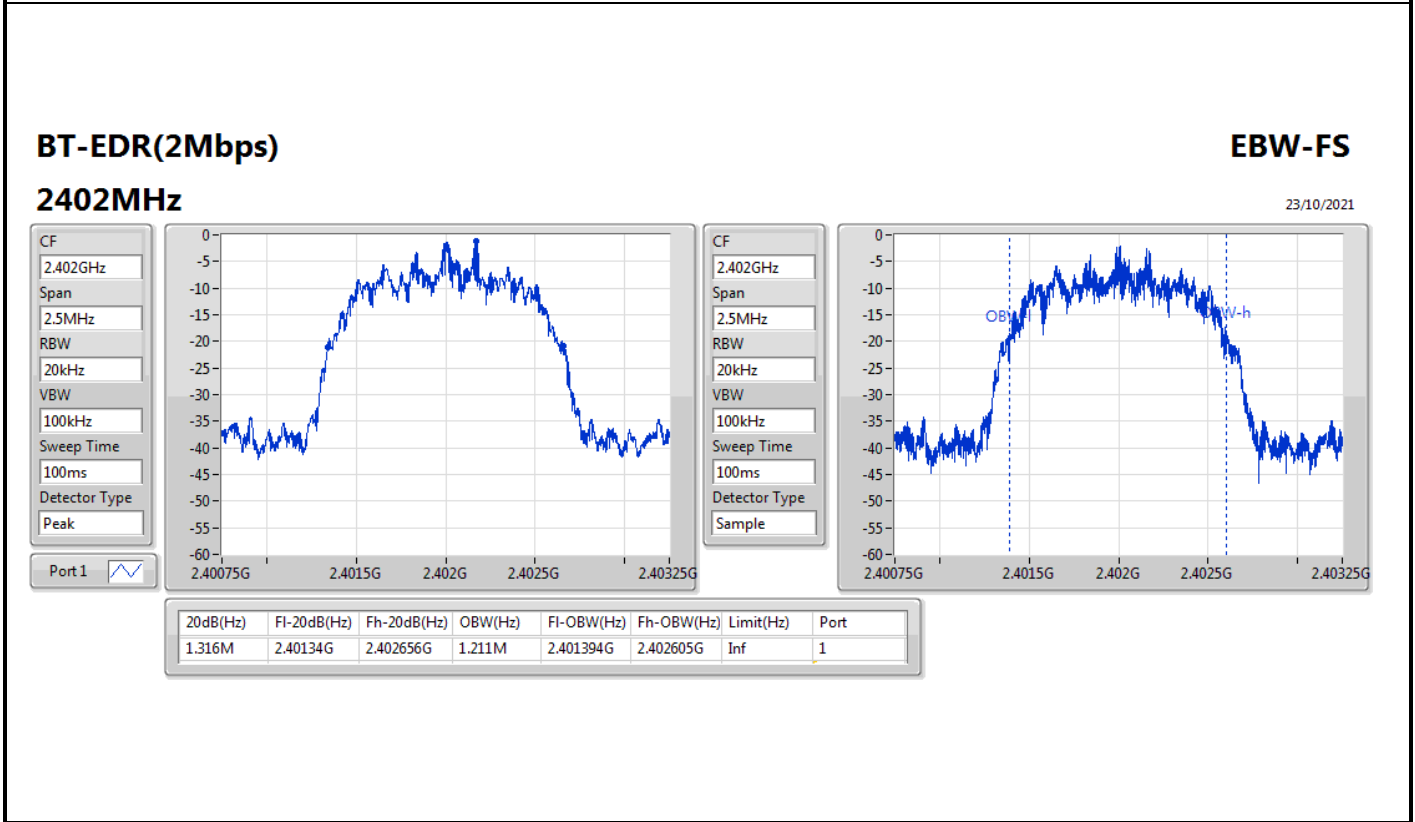
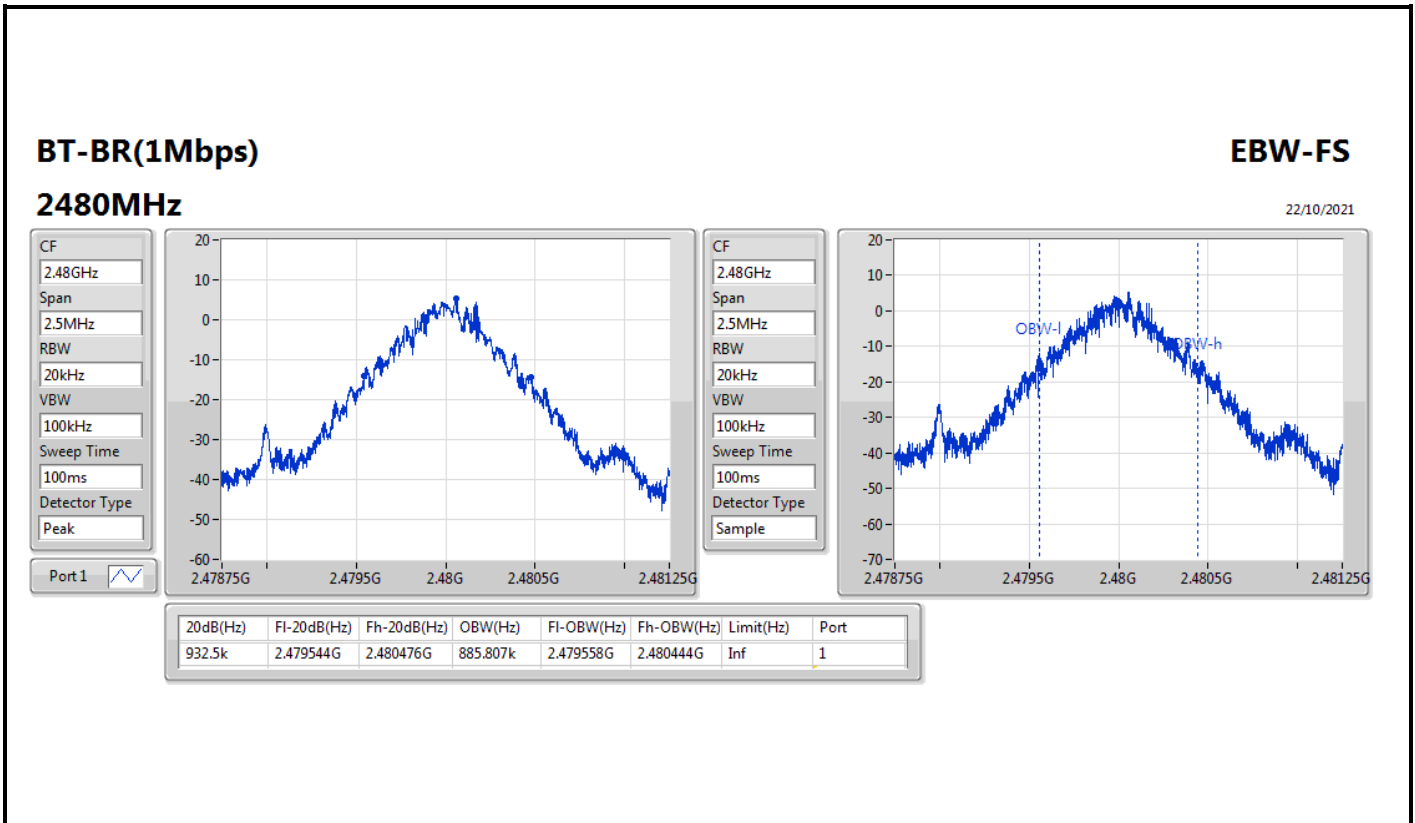


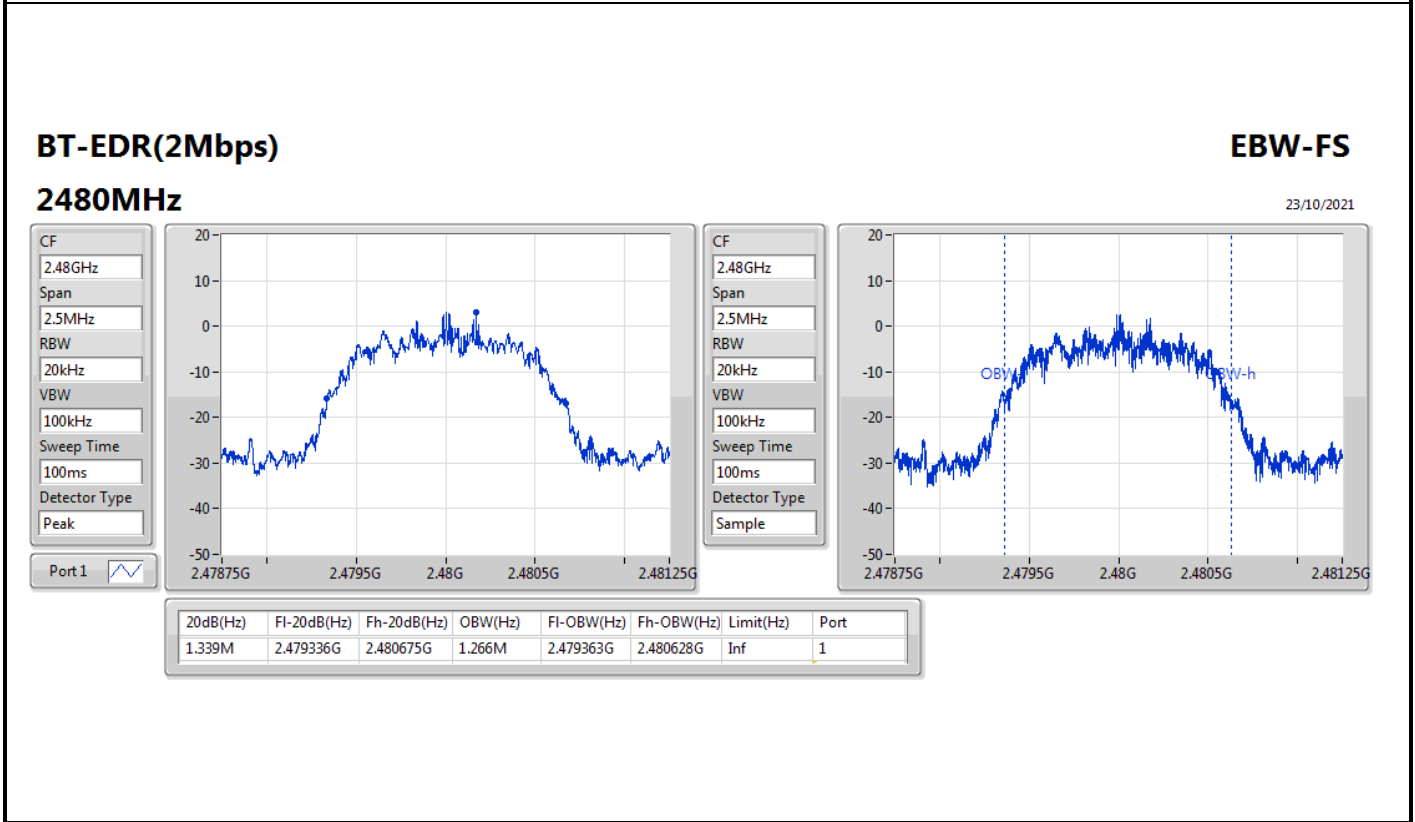
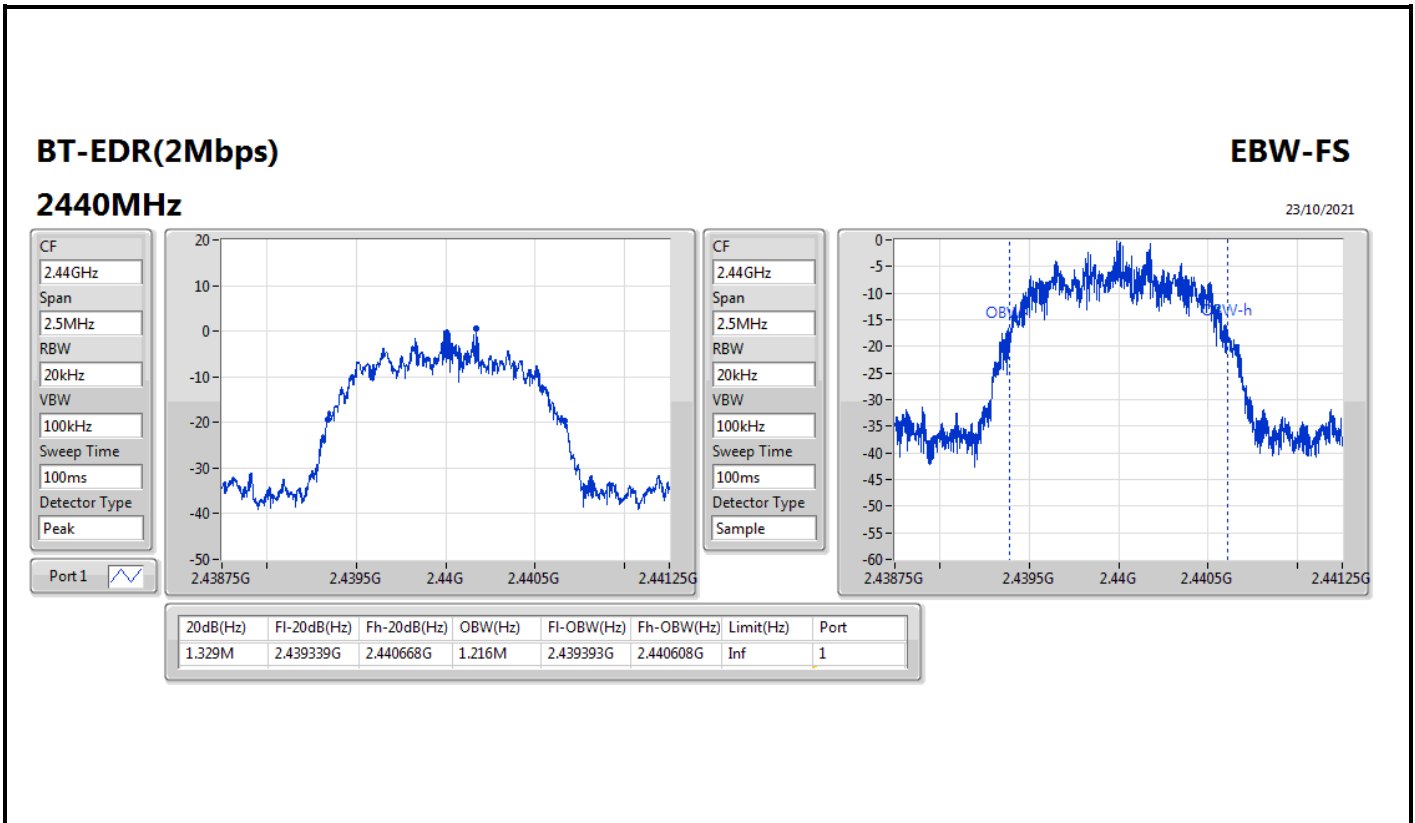
Result

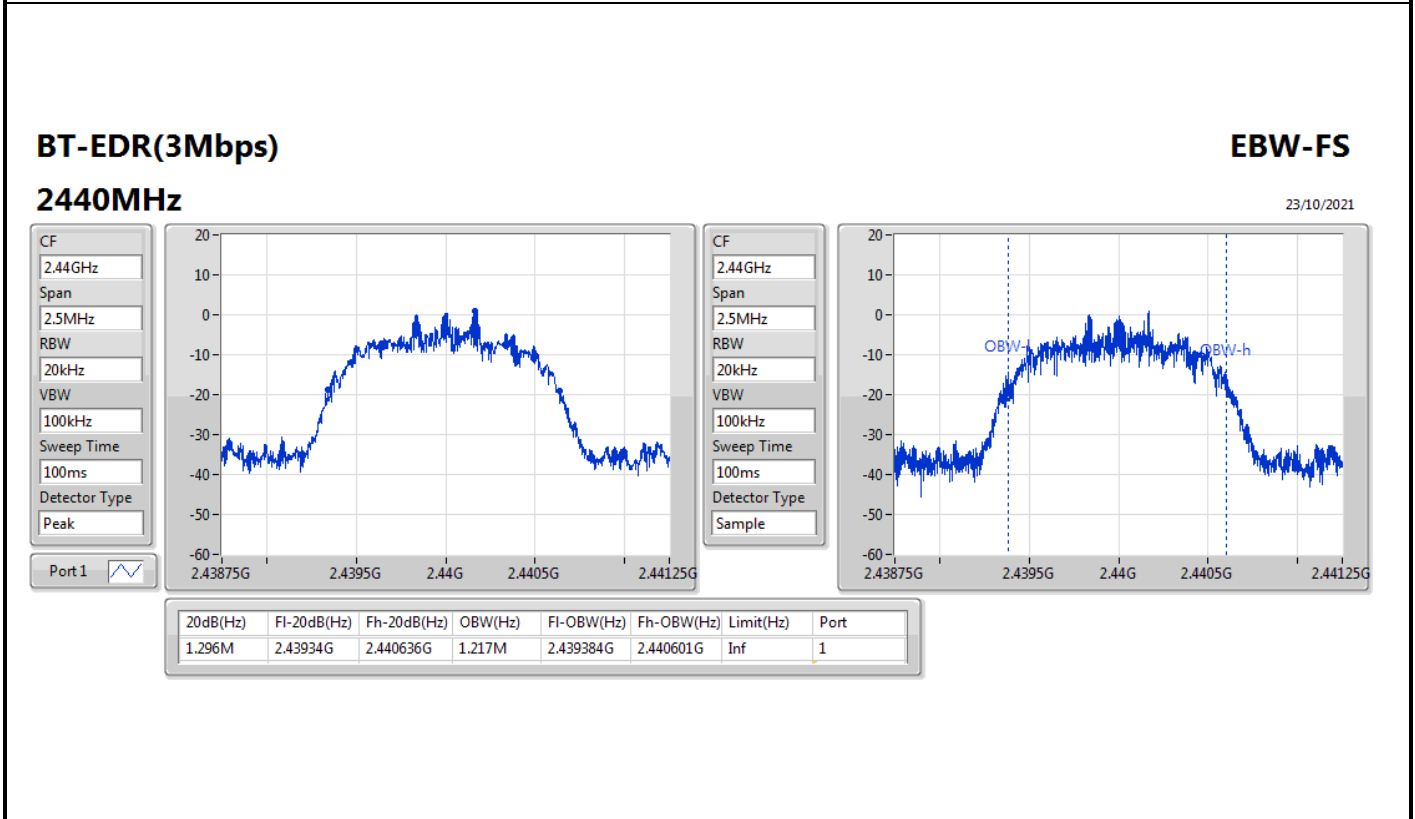
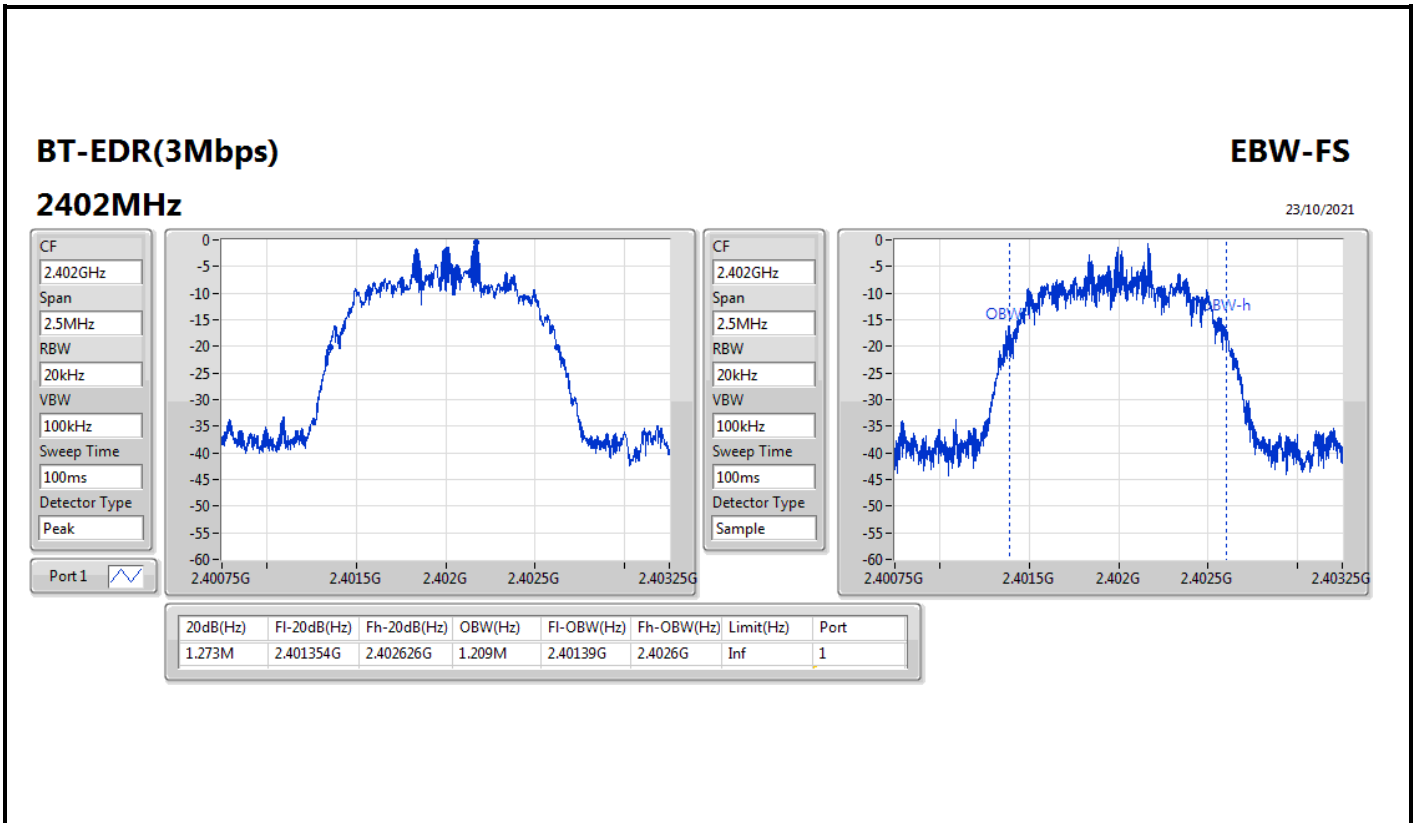
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	937.5k	855.822k
2440MHz	Pass	Inf	932.5k	878.311k
2480MHz	Pass	Inf	932.5k	885.807k
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.316M	1.211M
2440MHz	Pass	Inf	1.329M	1.216M
2480MHz	Pass	Inf	1.339M	1.266M
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.273M	1.209M
2440MHz	Pass	Inf	1.296M	1.217M
2480MHz	Pass	Inf	1.316M	1.247M

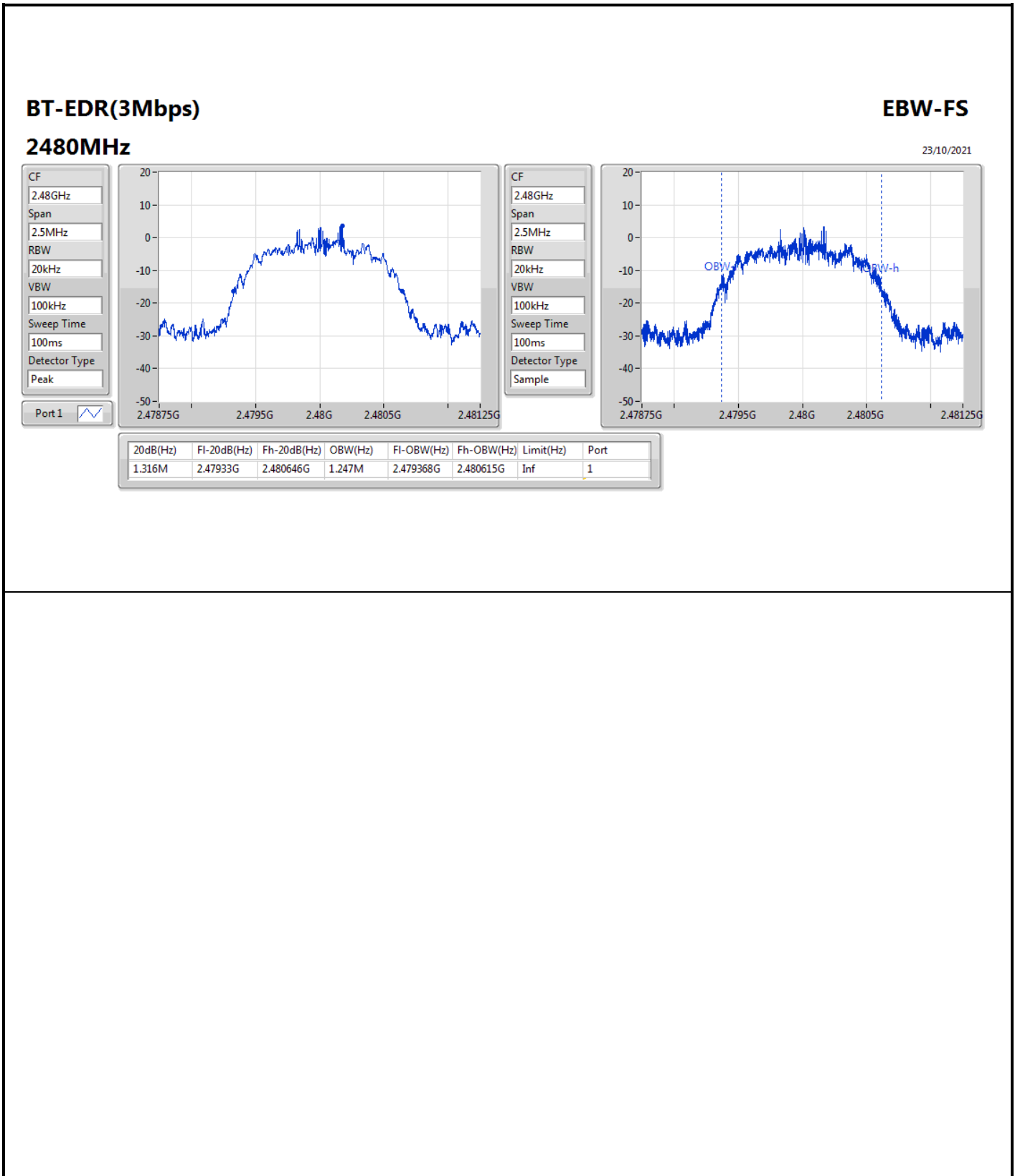
Port X-N dB = Port X 20dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth













Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.002M	1.0005M
BT-EDR(2Mbps)	1.002M	1.0005M
BT-EDR(3Mbps)	1.002M	999k



Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.402166G	2.403168G	1.002M	624.375k
2440MHz	Pass	2.440004G	2.441004G	1.0005M	621.045k
2480MHz	Pass	2.479002G	2.480004G	1.002M	621.045k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.402005G	2.403007G	1.002M	876.456k
2440MHz	Pass	2.440005G	2.441006G	1.0005M	885.114k
2480MHz	Pass	2.479005G	2.480007G	1.002M	891.774k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.402164G	2.403166G	1.002M	847.818k
2440MHz	Pass	2.440166G	2.441165G	999k	863.136k
2480MHz	Pass	2.479163G	2.480165G	1.002M	876.456k

BT-BR(1Mbps)

Channel Separation-FS

2.402G/2.403GHz

22/10/2021

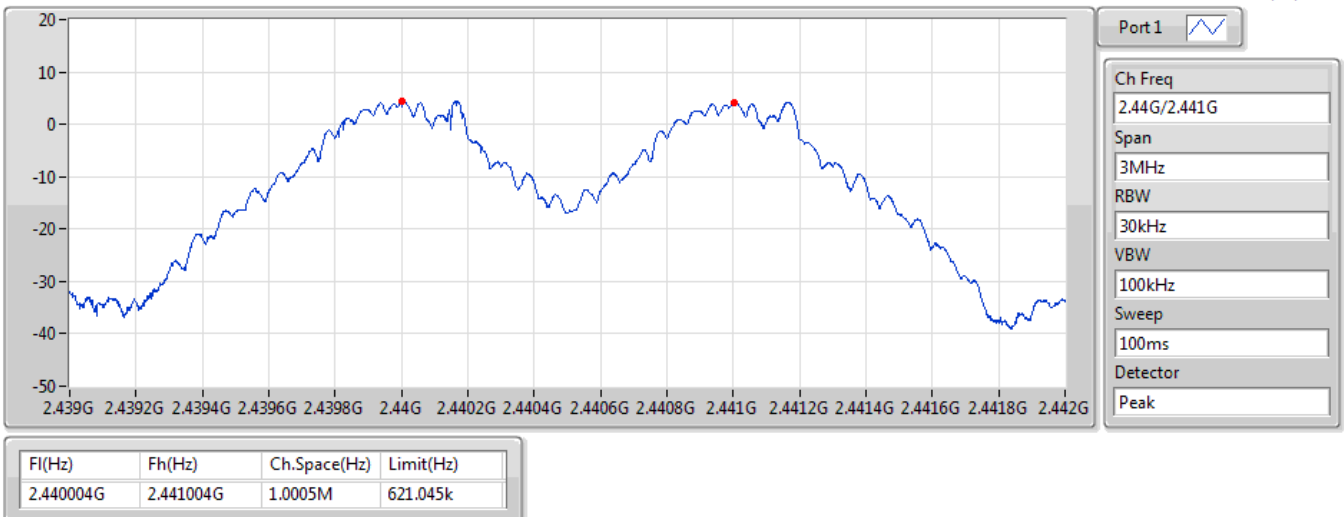


BT-BR(1Mbps)

Channel Separation-FS

2.44G/2.441GHz

22/10/2021




BT-BR(1Mbps)

2.48G/2.479GHz

Channel Separation-FS

22/10/2021



Port 1 

Ch Freq
2.48G/2.479G

Span
3MHz

RBW
30kHz

VBW
100kHz

Sweep
100ms

Detector
Peak

F1(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479002G	2.480004G	1.002M	621.045k


BT-EDR(2Mbps)

2.402G/2.403GHz

Channel Separation-FS

22/10/2021



Port 1 

Ch Freq
2.402G/2.403G

Span
3MHz

RBW
30kHz

VBW
100kHz

Sweep
100ms

Detector
Peak

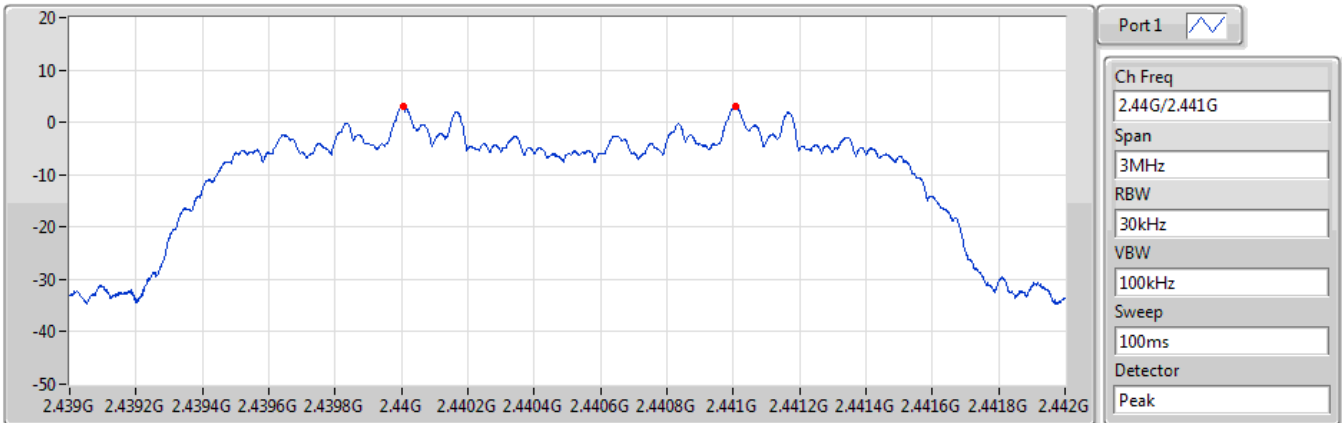
F1(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402005G	2.403007G	1.002M	876.456k

BT-EDR(2Mbps)

Channel Separation-FS

2.44G/2.441GHz

23/10/2021



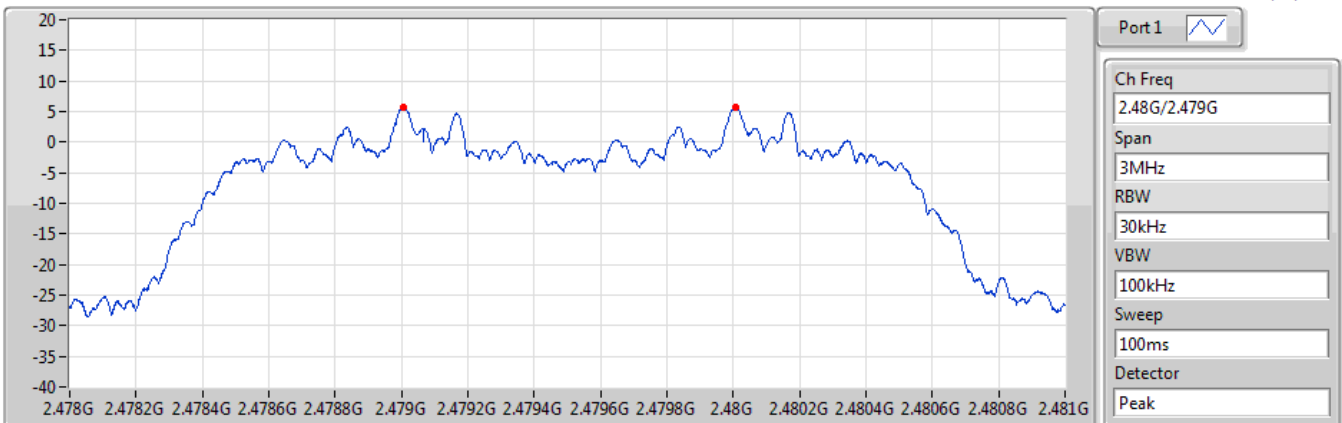
F1(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.440005G	2.441006G	1.0005M	885.114k

BT-EDR(2Mbps)

Channel Separation-FS

2.48G/2.479GHz

23/10/2021



F1(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479005G	2.480007G	1.002M	891.774k


BT-EDR(3Mbps)

Channel Separation-FS

2.402G/2.403GHz

23/10/2021



Port 1 

Ch Freq
2.402G/2.403G

Span
3MHz

RBW
30kHz

VBW
100kHz

Sweep
100ms

Detector
Peak

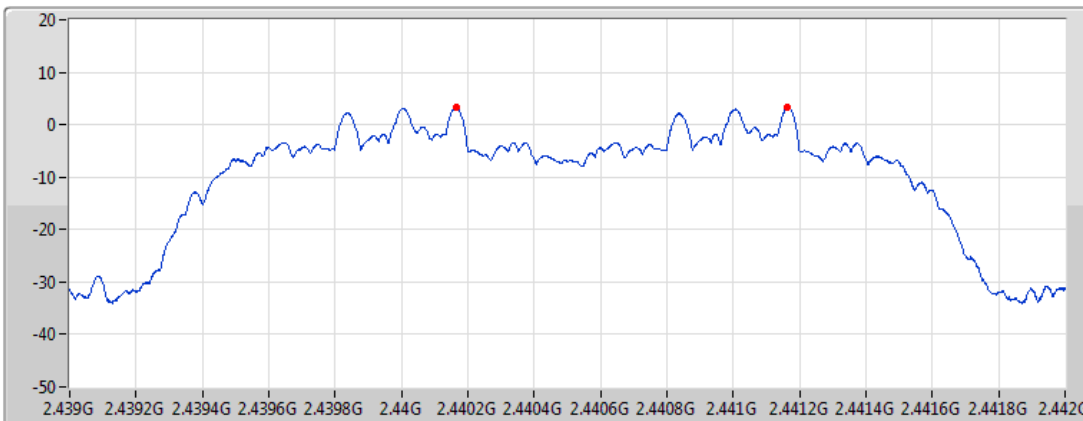
Ff(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402164G	2.403166G	1.002M	847.818k


BT-EDR(3Mbps)

Channel Separation-FS

2.44G/2.441GHz

23/10/2021



Port 1 

Ch Freq
2.44G/2.441G

Span
3MHz

RBW
30kHz

VBW
100kHz

Sweep
100ms

Detector
Peak

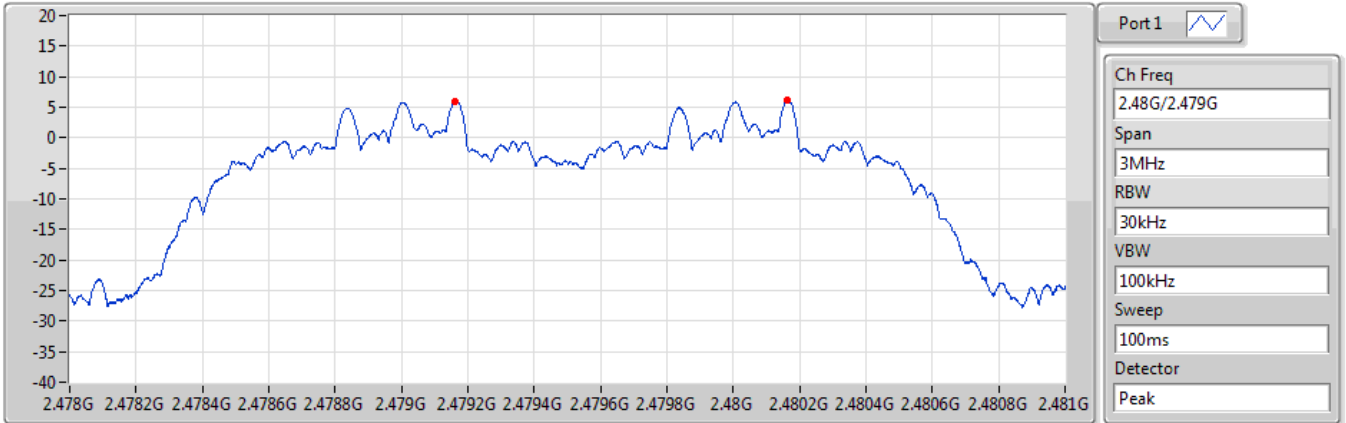
Ff(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.440166G	2.441165G	999k	863.136k

BT-EDR(3Mbps)

2.48G/2.479GHz

Channel Separation-FS

23/10/2021



F1(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479163G	2.480165G	1.002M	876.456k



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	8.84	0.00766
BT-EDR(2Mbps)	8.40	0.00692
BT-EDR(3Mbps)	8.54	0.00714



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	5.10	5.97	21.00
2440MHz	Pass	5.10	7.07	21.00
2480MHz	Pass	5.10	8.84	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	5.10	4.63	21.00
2440MHz	Pass	5.10	6.19	21.00
2480MHz	Pass	5.10	8.40	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	5.10	5.03	21.00
2440MHz	Pass	5.10	6.32	21.00
2480MHz	Pass	5.10	8.54	21.00

DG = Directional Gain; Port X = Port X output power



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	8.76	0.00752
BT-EDR(2Mbps)	7.16	0.00520
BT-EDR(3Mbps)	7.16	0.00520



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	5.10	5.67	21.00
2440MHz	Pass	5.10	6.81	21.00
2480MHz	Pass	5.10	8.76	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	5.10	2.56	21.00
2440MHz	Pass	5.10	4.25	21.00
2480MHz	Pass	5.10	7.16	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	5.10	2.60	21.00
2440MHz	Pass	5.10	4.20	21.00
2480MHz	Pass	5.10	7.16	21.00

DG = Directional Gain; Port X = Port X output power



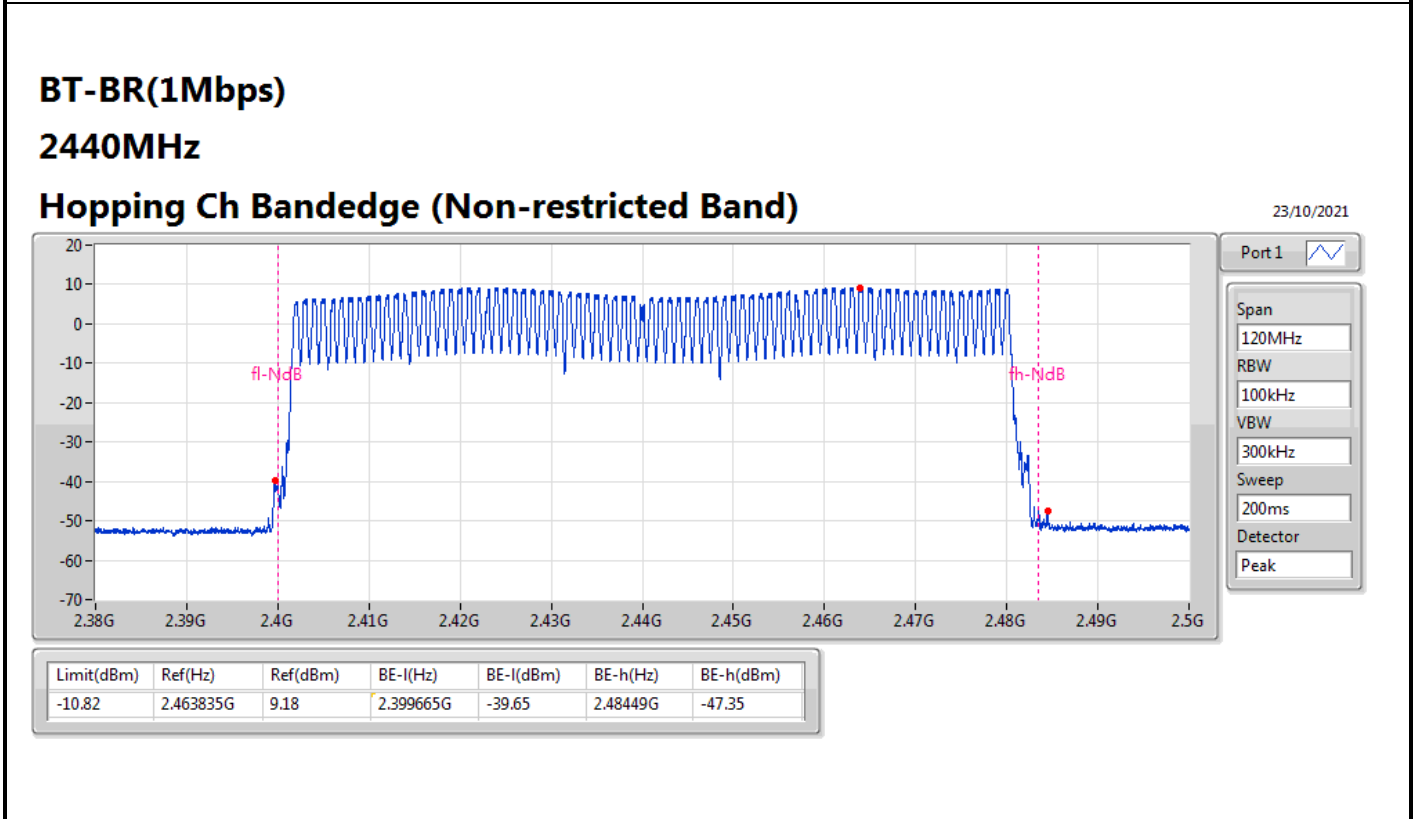
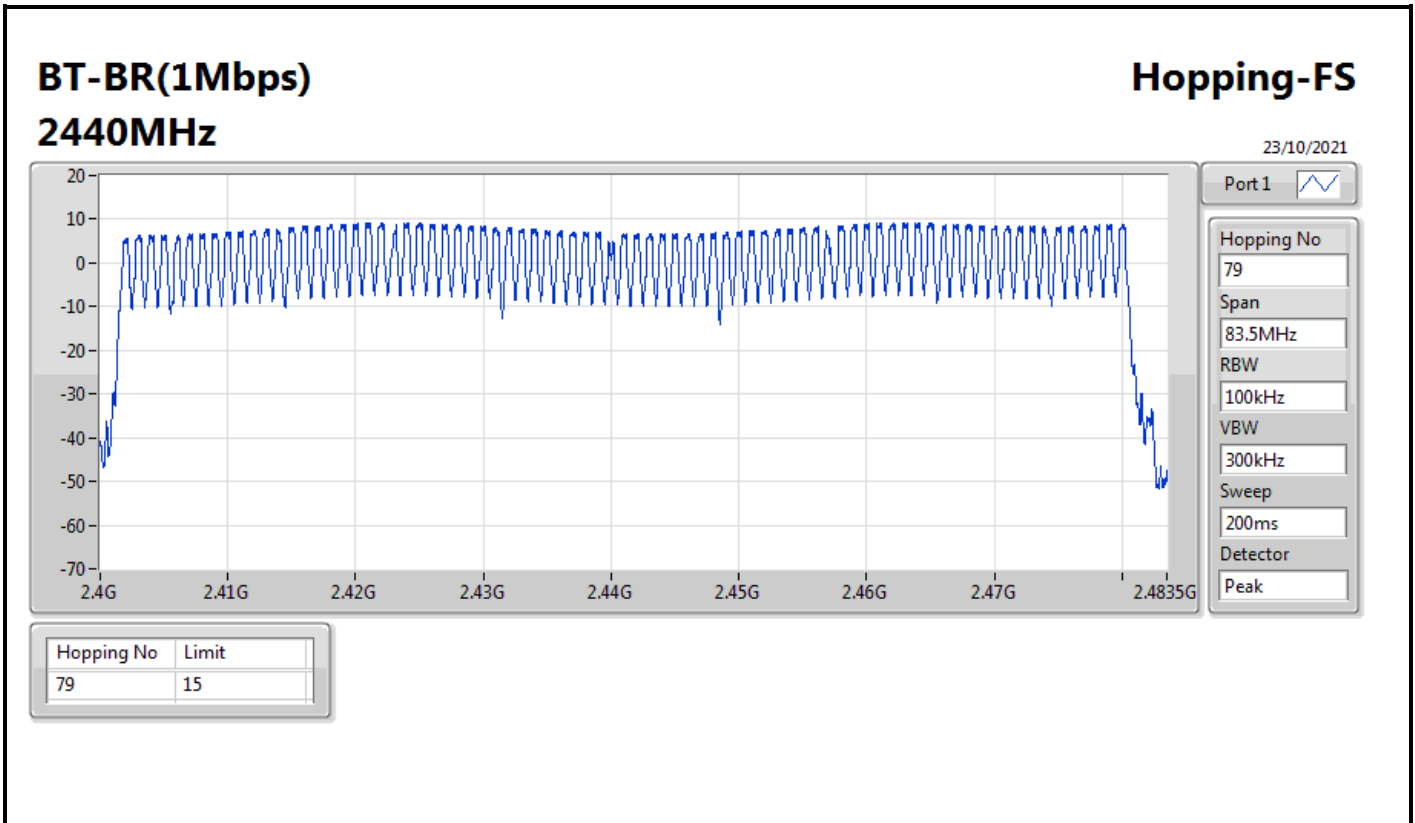
Summary

Mode	Max-Hop No
2.4-2.4835GHz	-
BT-BR(1Mbps)	79
BT-EDR(2Mbps)	79
BT-EDR(3Mbps)	79



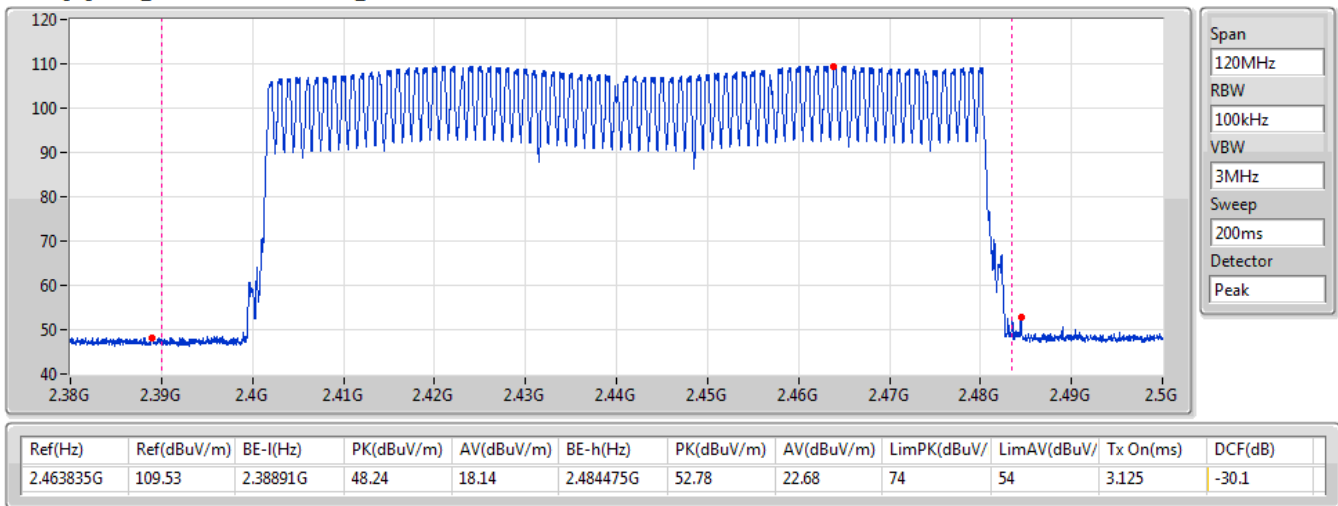
Result

Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2440MHz	Pass	79	15



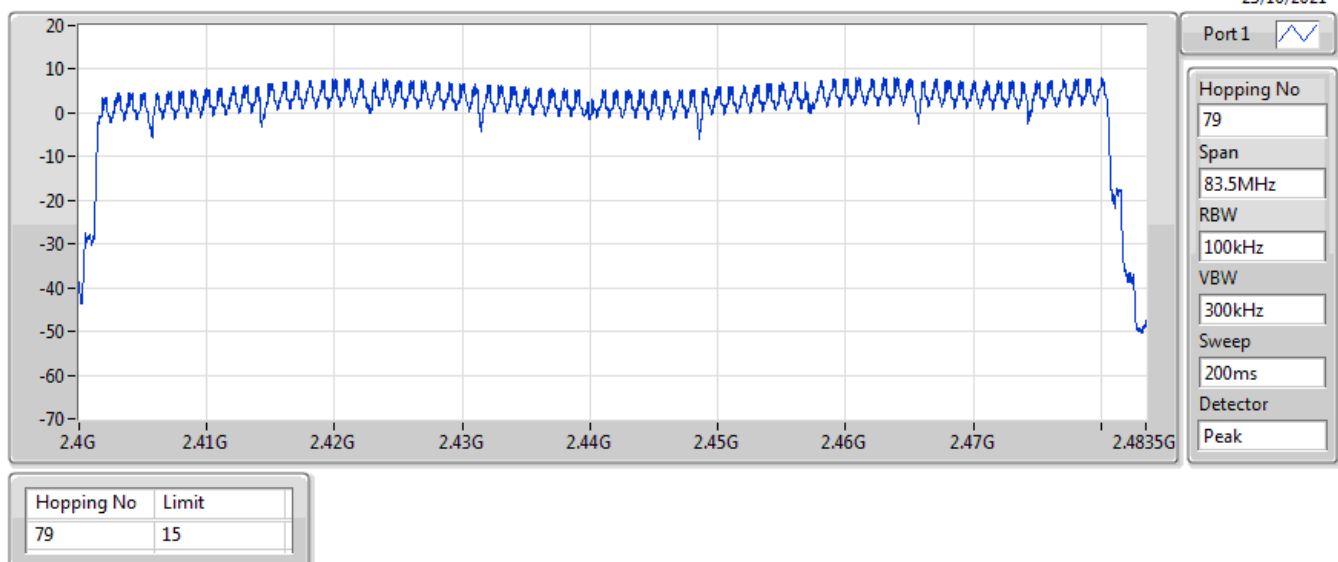
BT-BR(1Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

23/10/2021



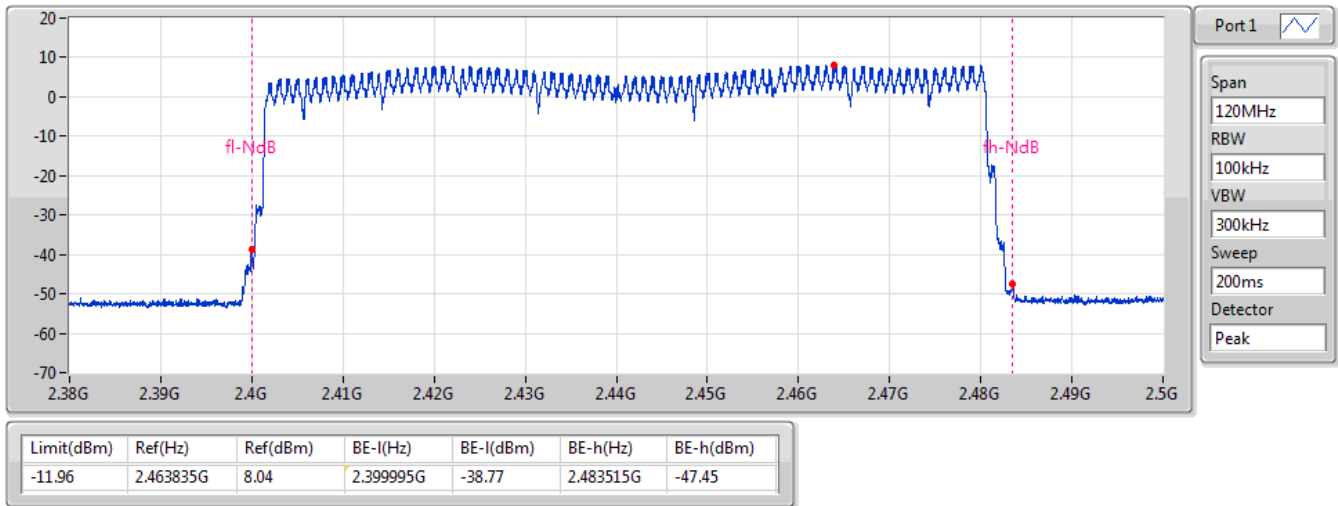
BT-EDR(2Mbps) **Hopping-FS**
2440MHz

23/10/2021



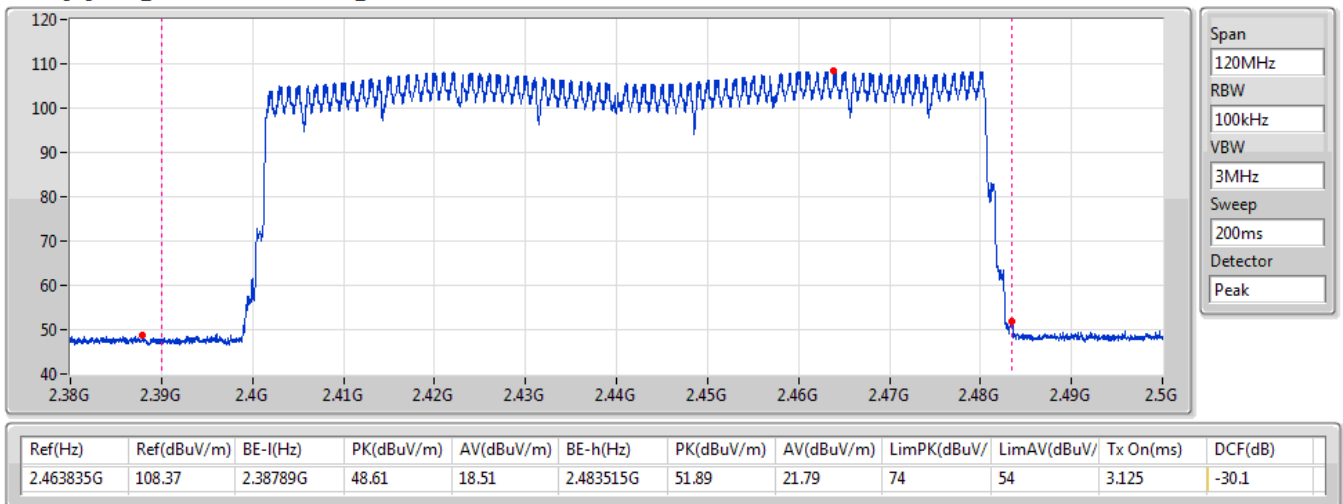
BT-EDR(2Mbps)
2440MHz
Hopping Ch Bandedge (Non-restricted Band)

23/10/2021



BT-EDR(2Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

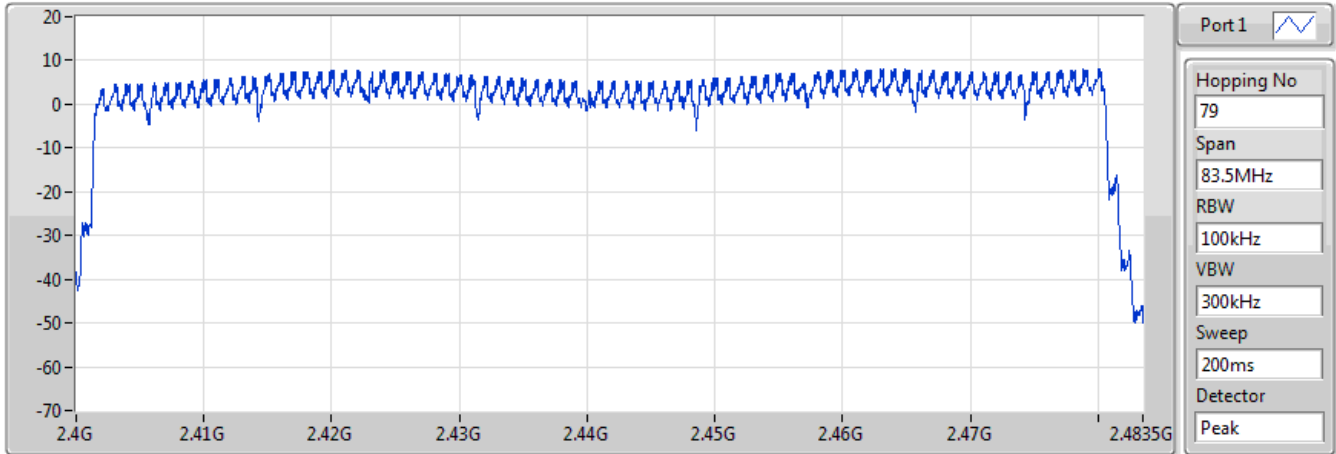
23/10/2021



**BT-EDR(3Mbps)
2440MHz**

Hopping-FS

23/10/2021

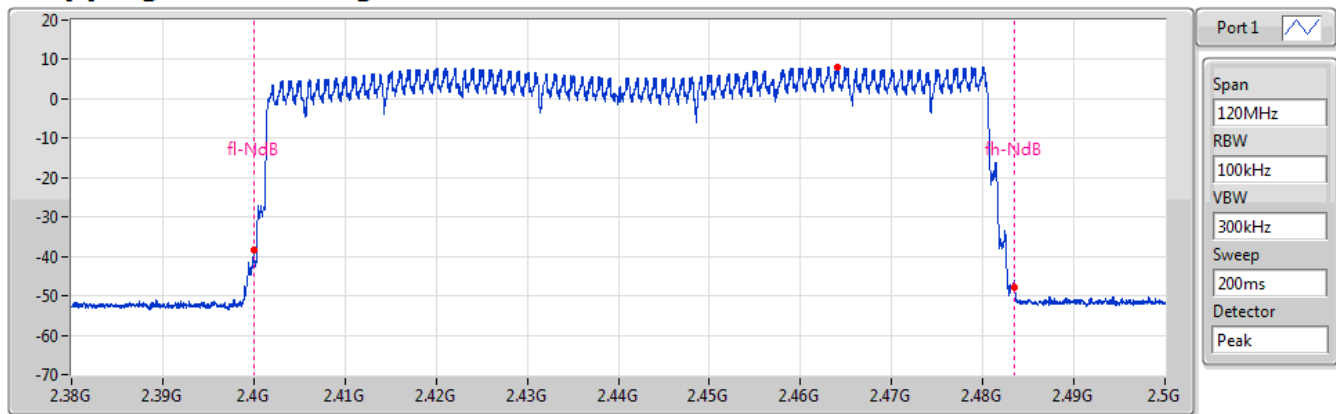


Hopping No	Limit
79	15

**BT-EDR(3Mbps)
2440MHz**

Hopping Ch Bandedge (Non-restricted Band)

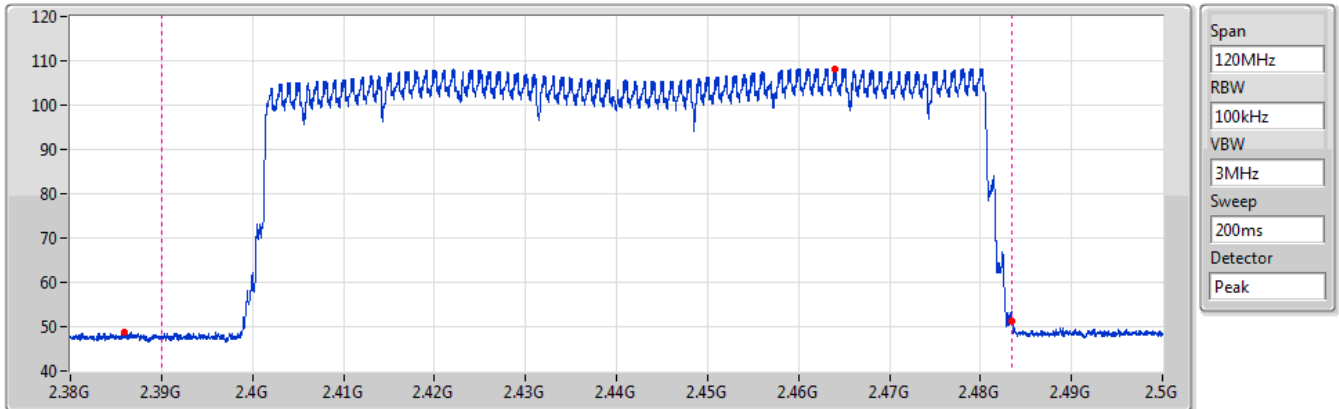
23/10/2021



Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-12.02	2.464G	7.98	2.399995G	-38.28	2.483515G	-47.83

BT-EDR(3Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

23/10/2021



Span

 RBW

 VBW

 Sweep

 Detector

Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.464G	108.26	2.385925G	48.65	18.55	2.483515G	51.26	21.16	74	54	3.125	-30.1



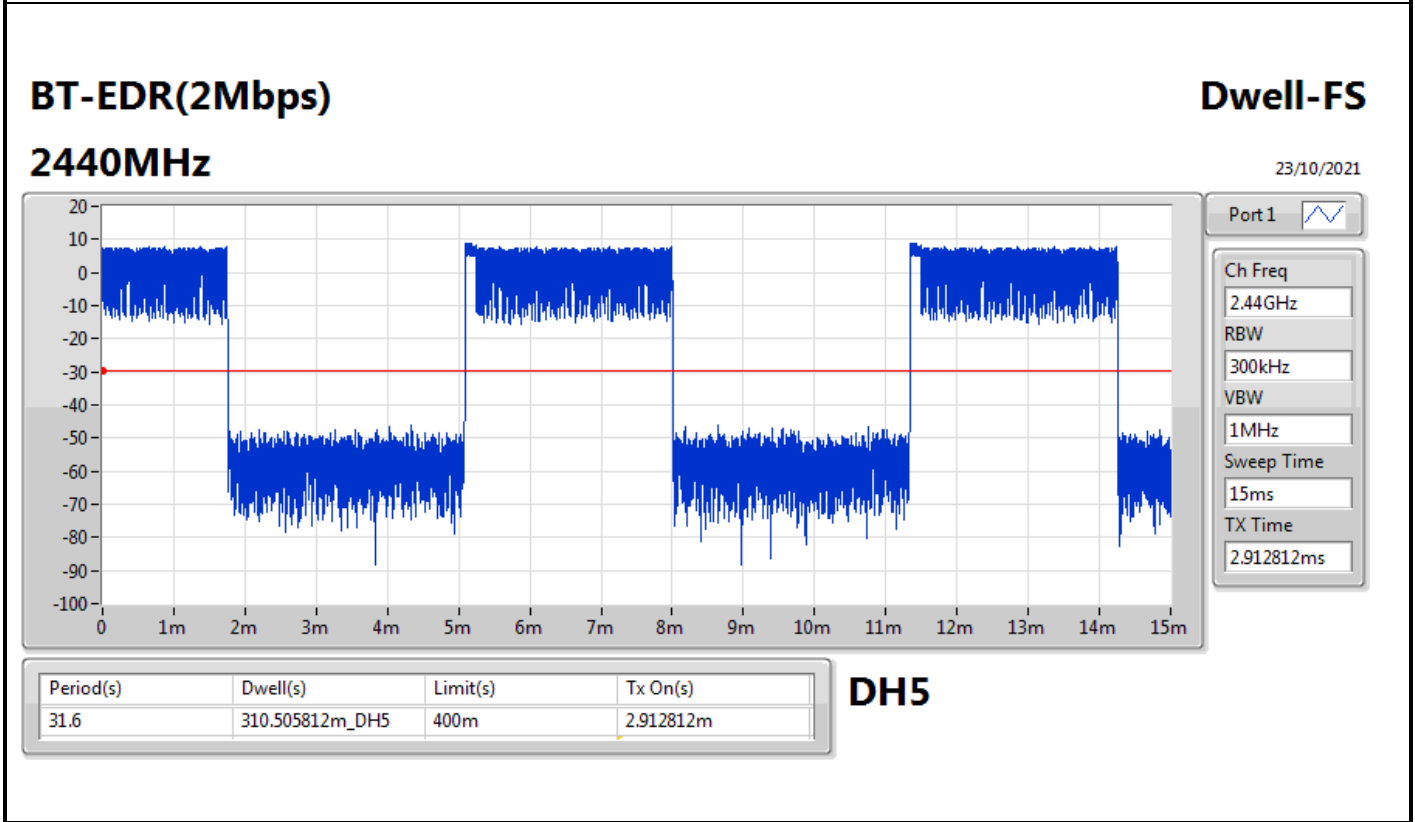
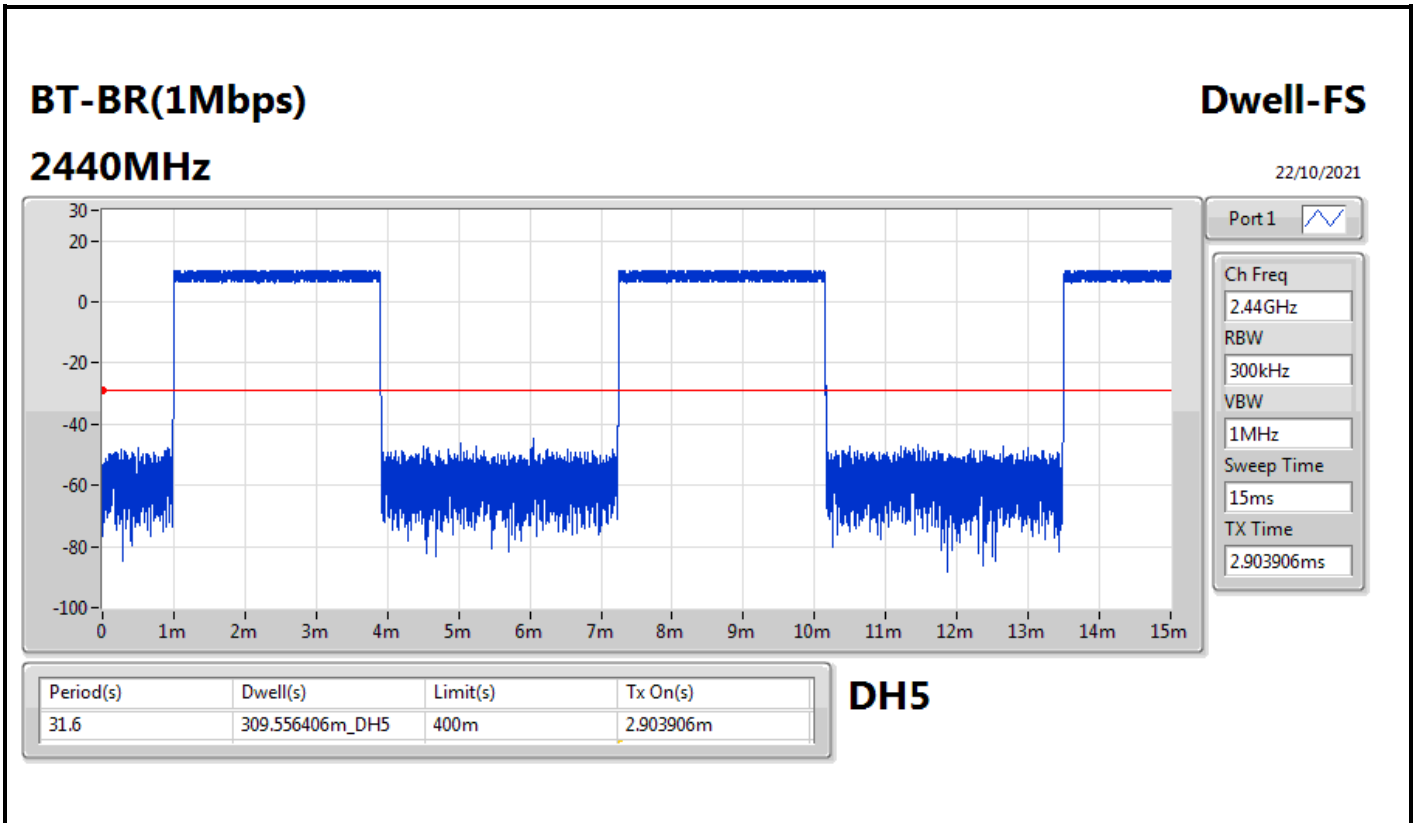
Summary

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	309.556406m_DH5
BT-EDR(2Mbps)	310.505812m_DH5
BT-EDR(3Mbps)	311.904937m_DH5



Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	309.556406m_DH5	400m	2.903906m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	310.505812m_DH5	400m	2.912812m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	311.904937m_DH5	400m	2.925937m

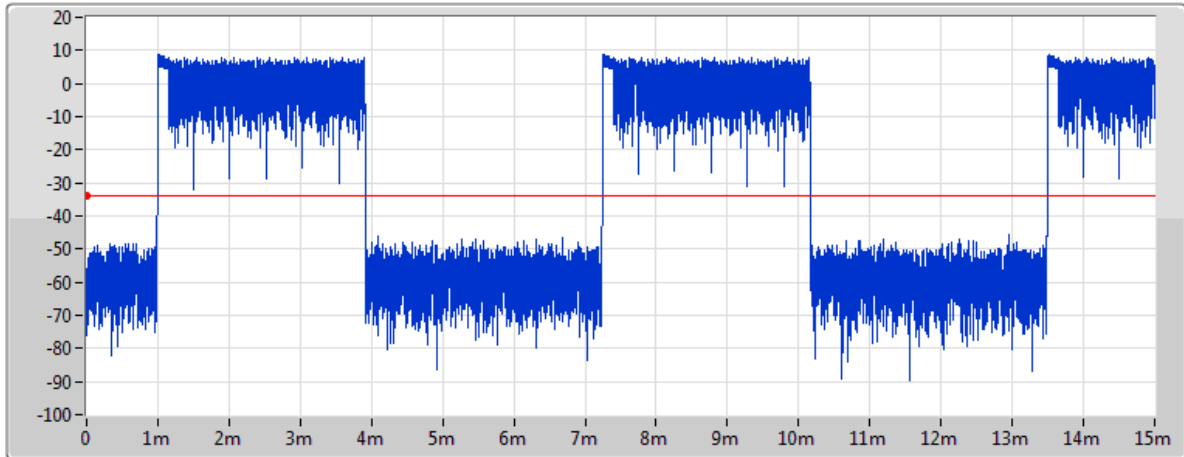


BT-EDR(3Mbps)

Dwell-FS

2440MHz

23/10/2021



Port 1 

Ch Freq
2.44GHz

RBW
300kHz

VBW
1MHz

Sweep Time
15ms

TX Time
2.925937ms

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	311.904937m_DH5	400m	2.925937m

DH5



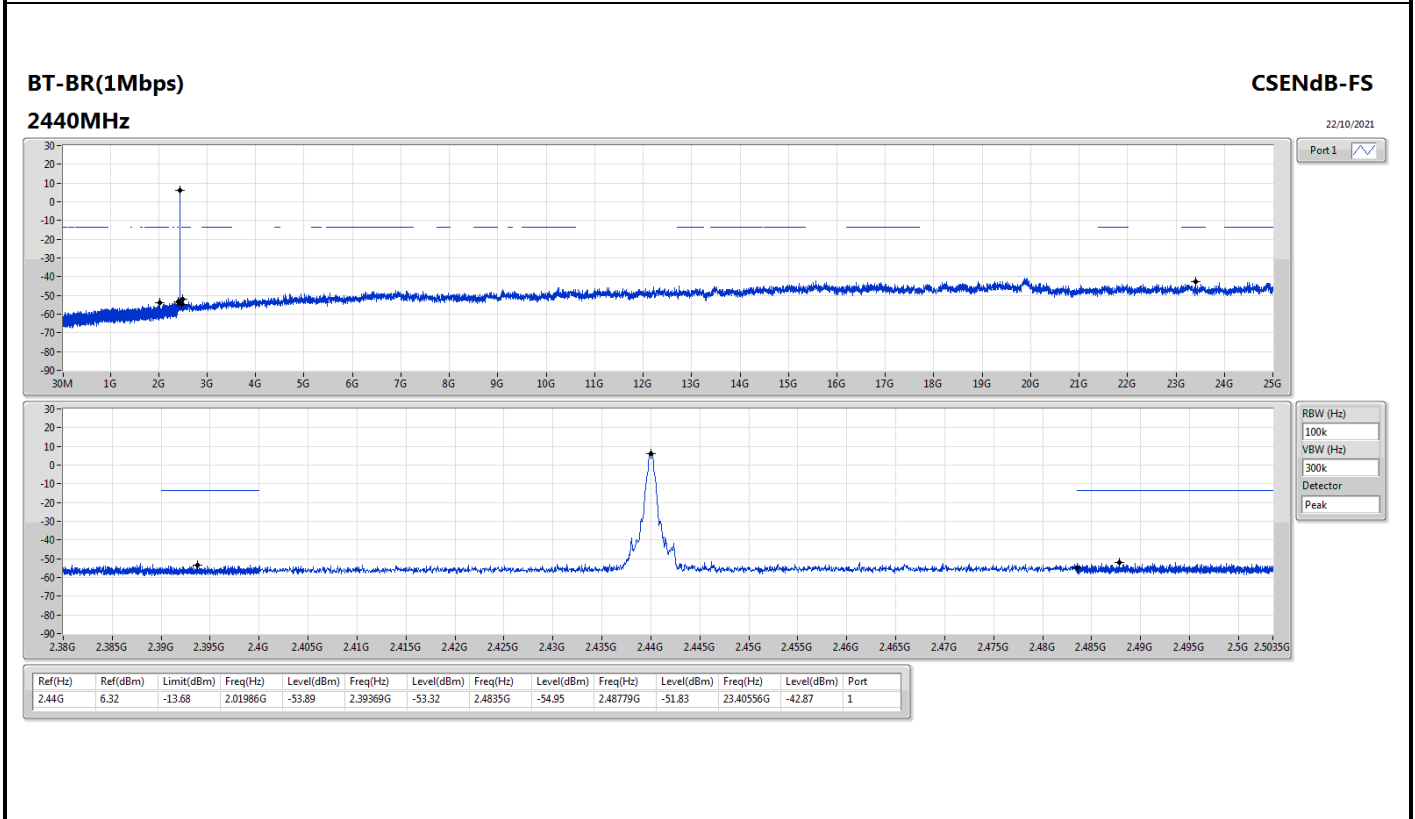
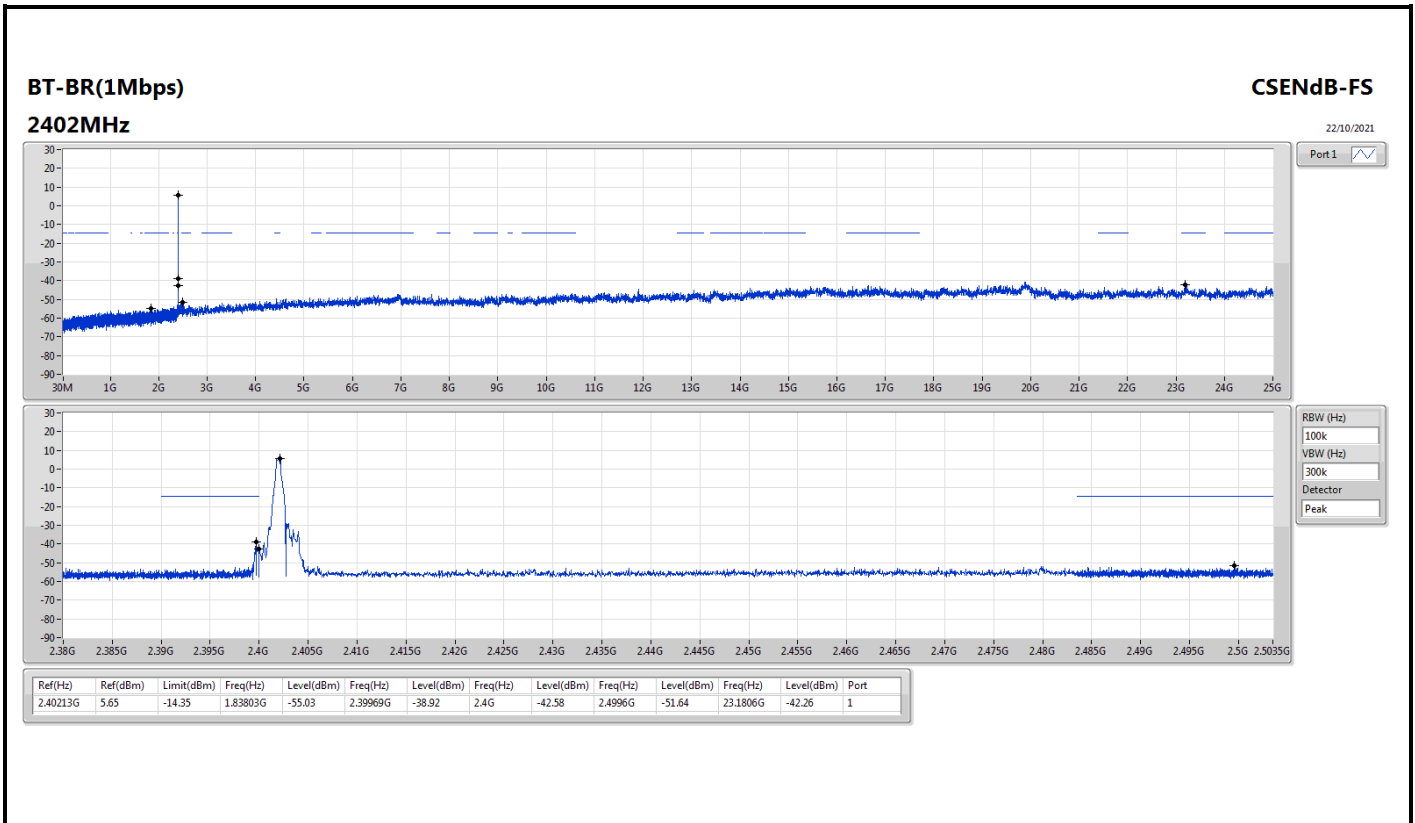
Summary

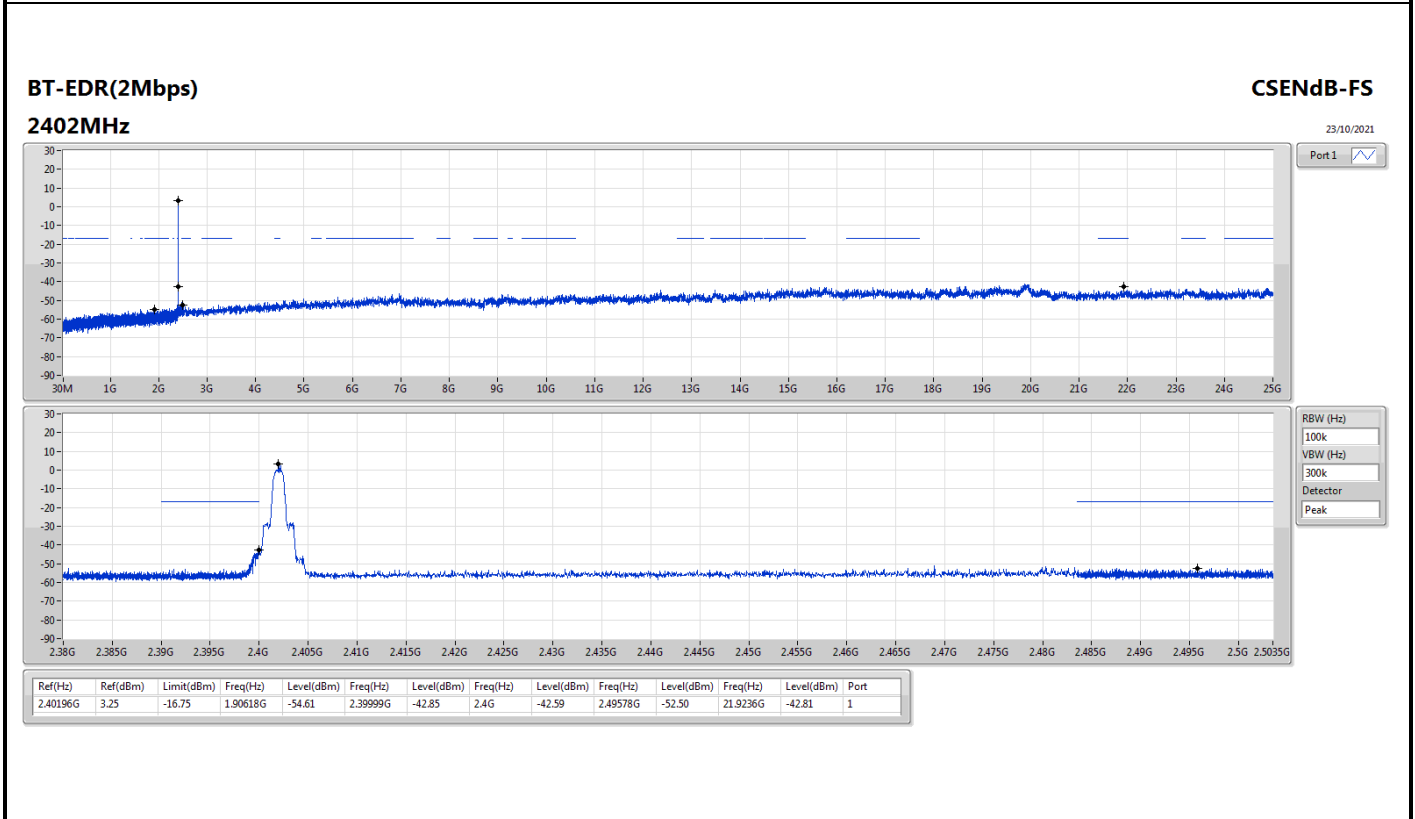
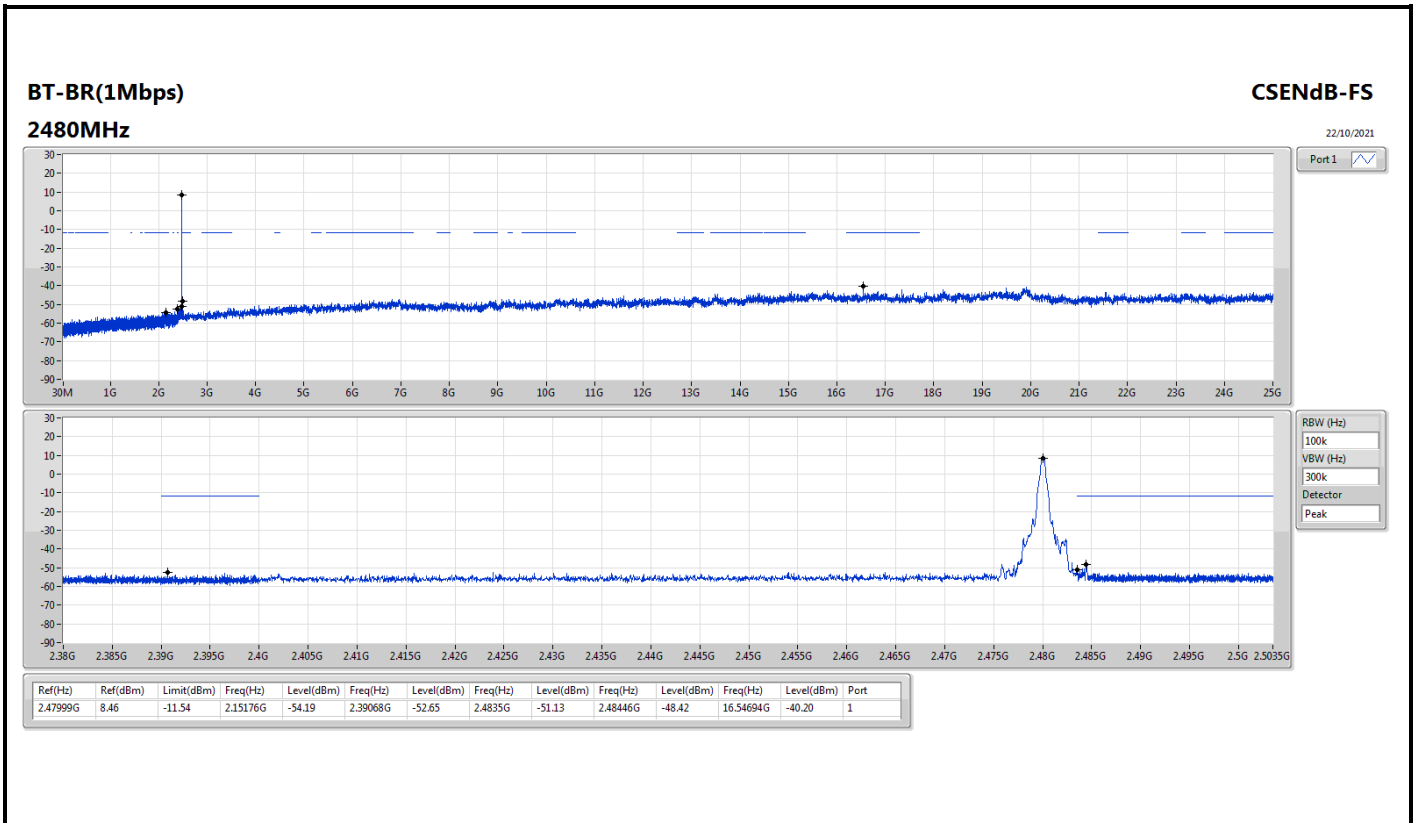
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.40213G	5.65	-14.35	1.83803G	-55.03	2.39969G	-38.92	2.4G	-42.58	2.4996G	-51.64	23.1806G	-42.26	1
BT-EDR(2Mbps)	Pass	2.40196G	3.25	-16.75	1.90618G	-54.61	2.39999G	-42.85	2.4G	-42.59	2.49578G	-52.50	21.9236G	-42.81	1
BT-EDR(3Mbps)	Pass	2.4018G	3.67	-16.33	2.16498G	-54.98	2.39999G	-38.71	2.4G	-39.12	2.50197G	-52.29	24.90439G	-43.16	1

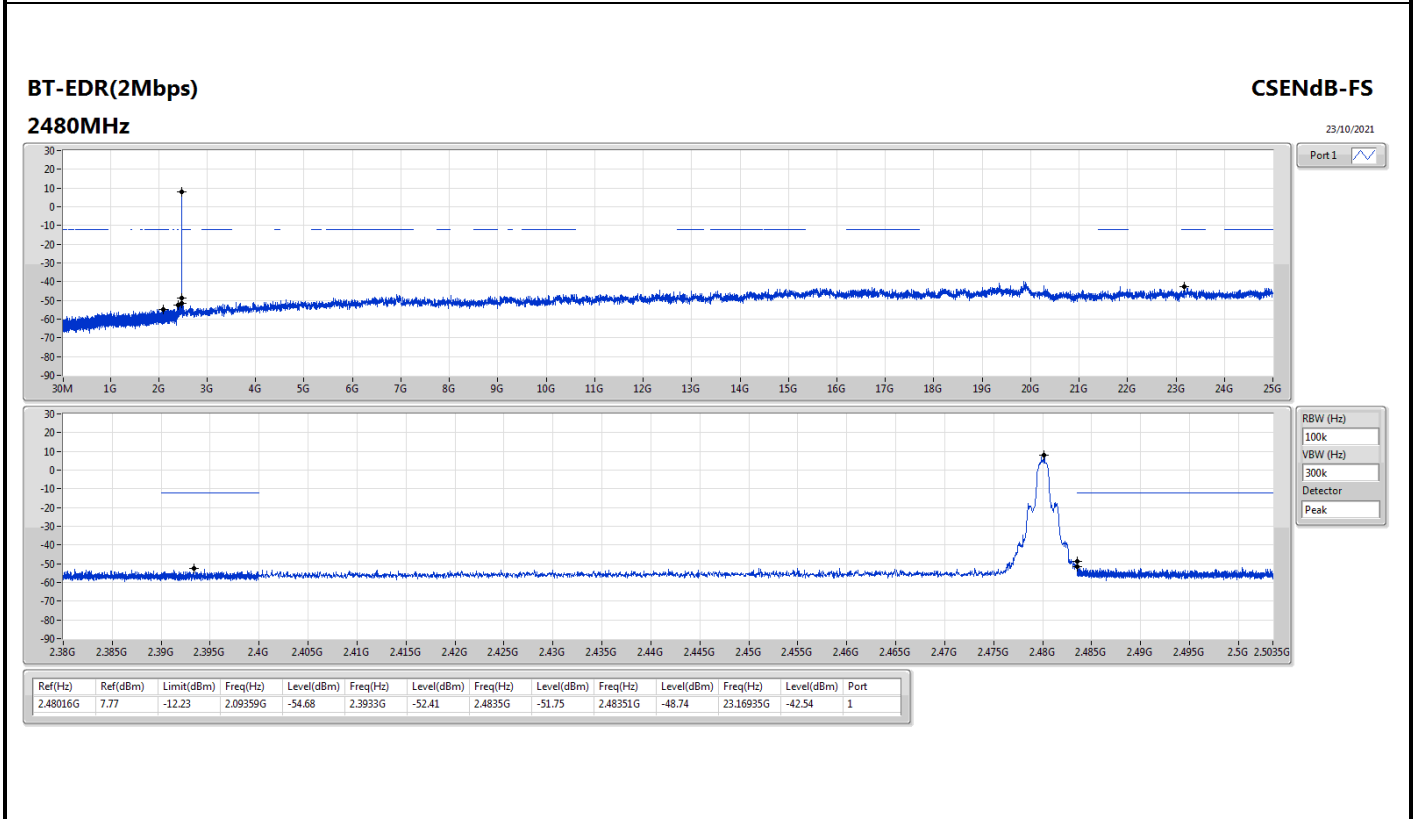
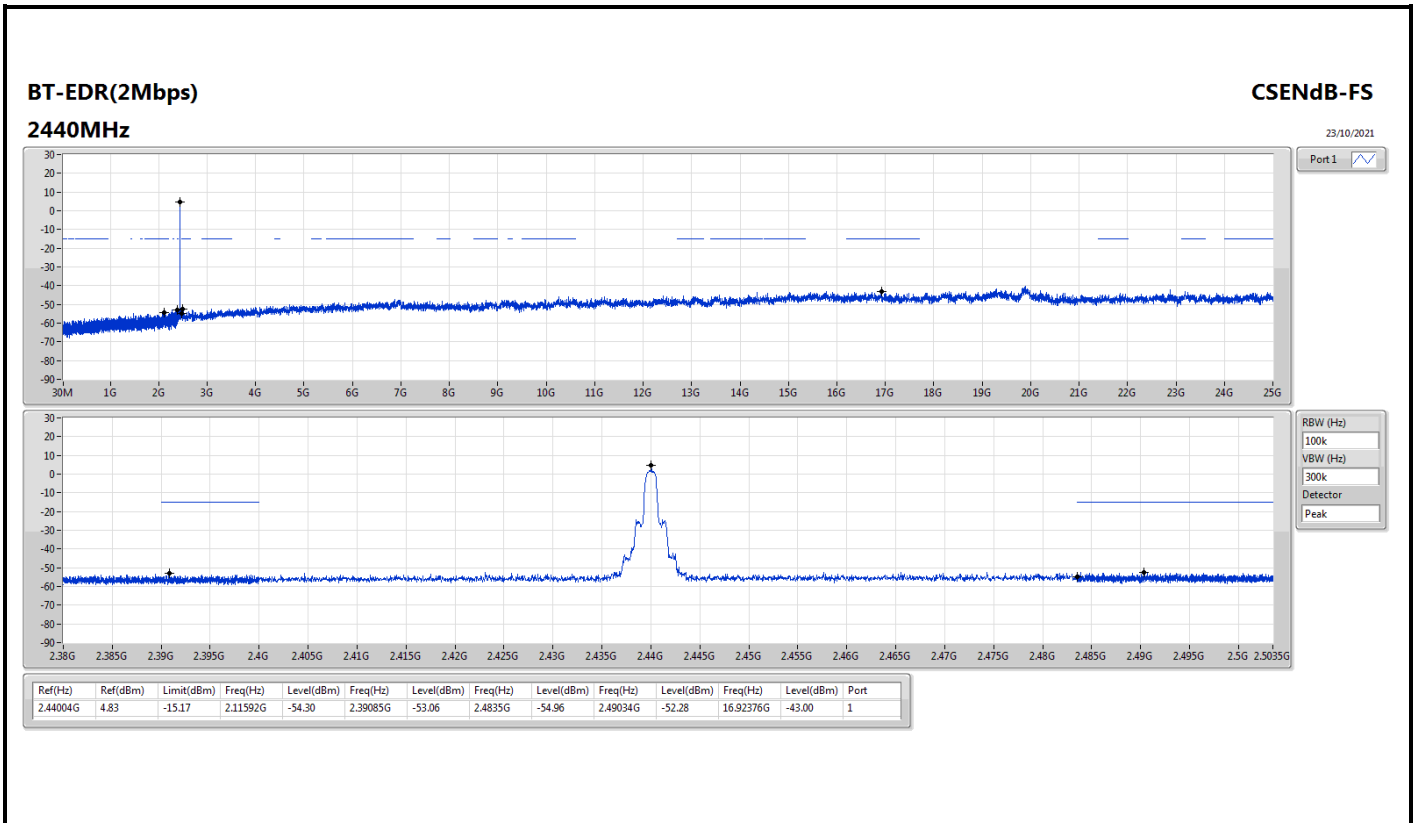


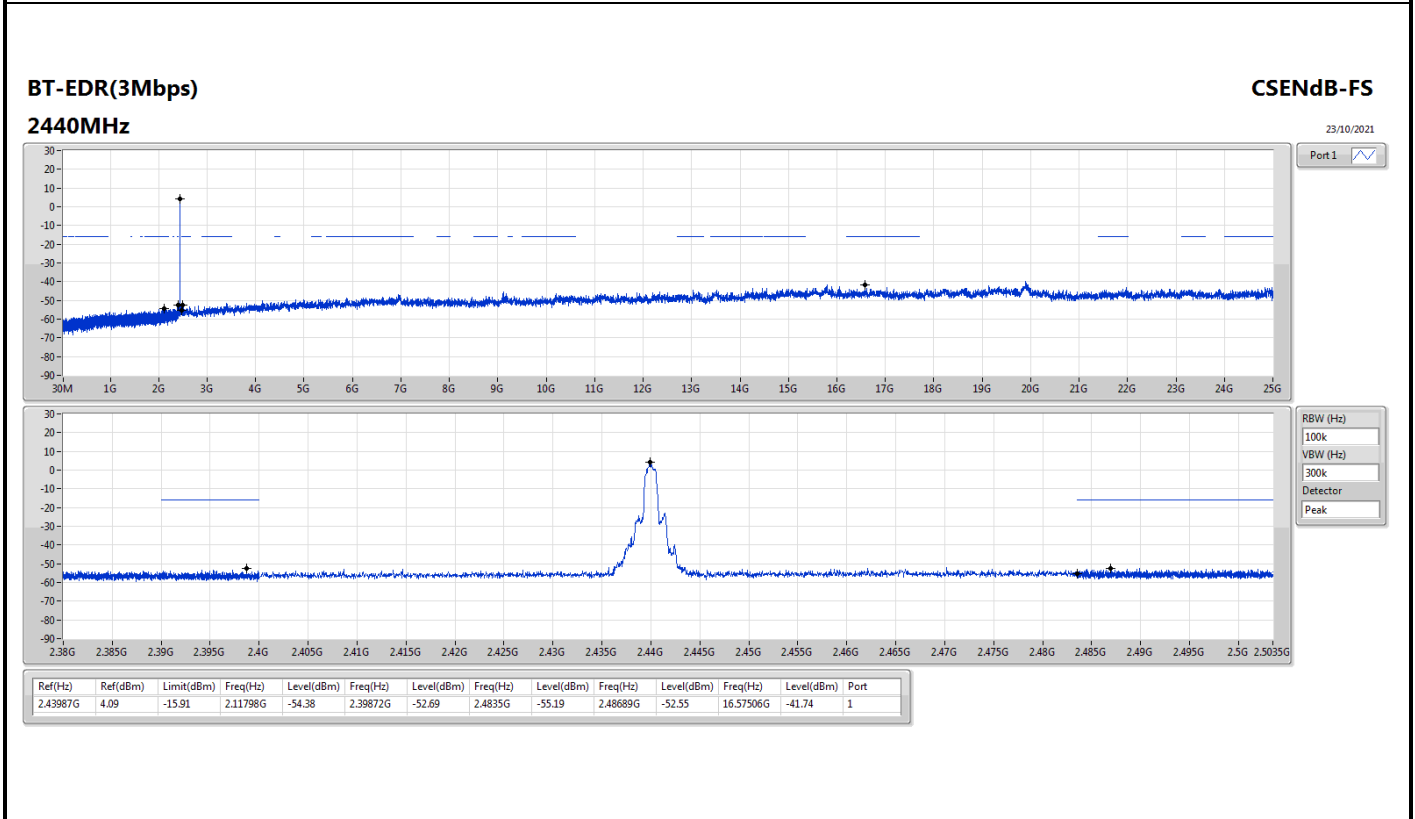
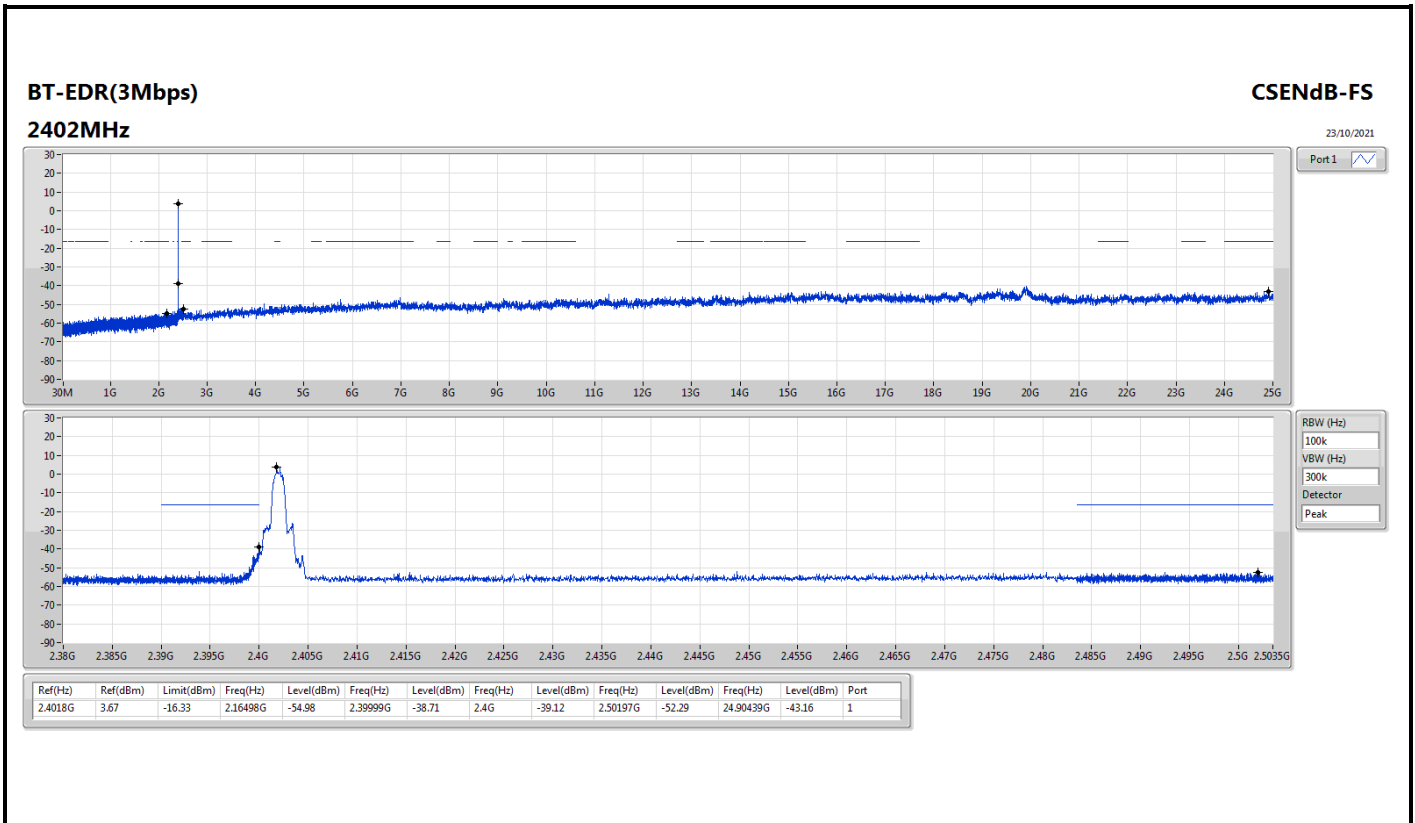
Result

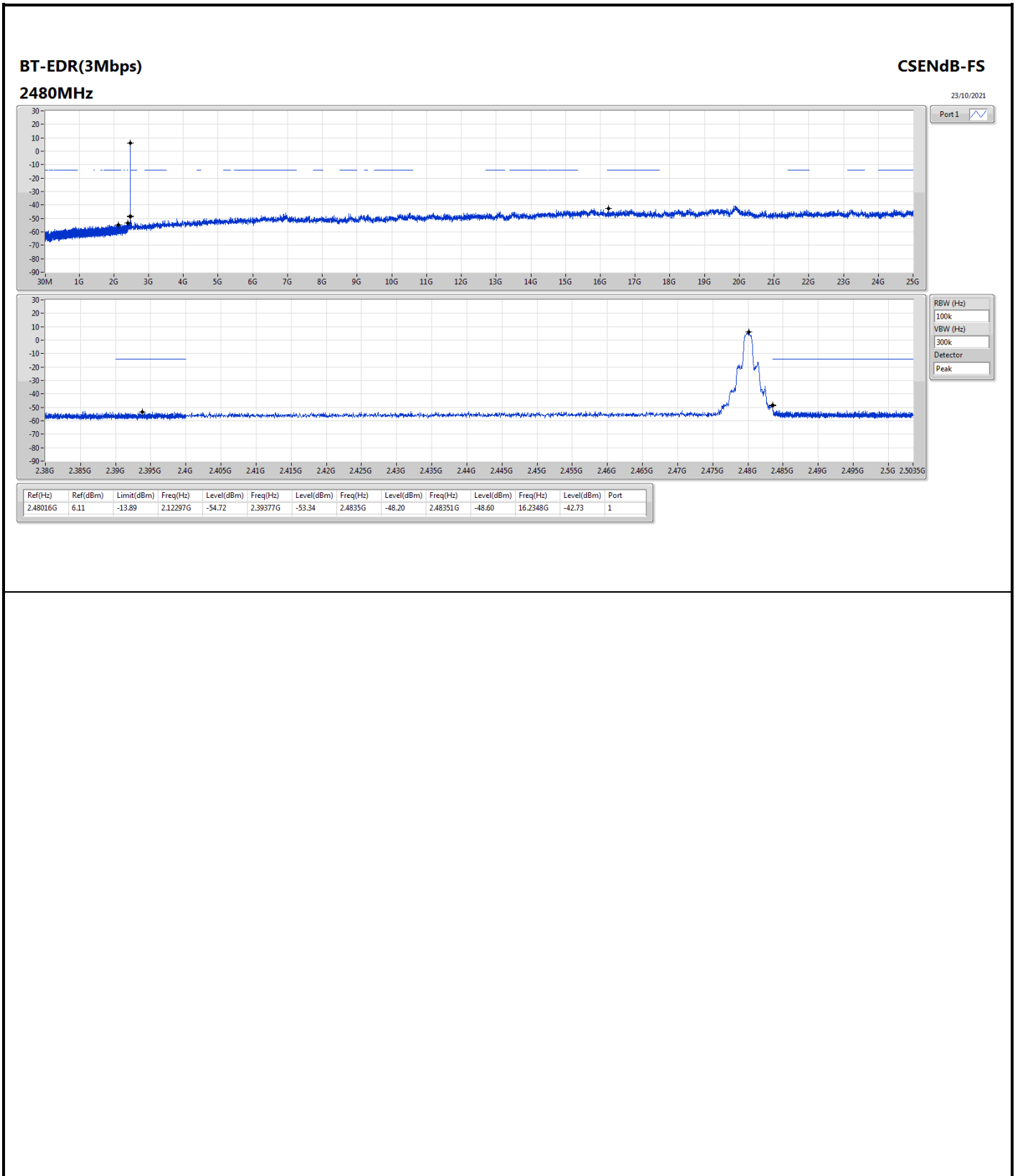
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40213G	5.65	-14.35	1.83803G	-55.03	2.39969G	-38.92	2.4G	-42.58	2.4996G	-51.64	23.1806G	-42.26	1
2440MHz	Pass	2.44G	6.32	-13.68	2.01986G	-53.89	2.39369G	-53.32	2.4835G	-54.95	2.48779G	-51.83	23.40556G	-42.87	1
2480MHz	Pass	2.47999G	8.46	-11.54	2.15176G	-54.19	2.39068G	-52.65	2.4835G	-51.13	2.48446G	-48.42	16.54694G	-40.20	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	3.25	-16.75	1.90618G	-54.61	2.39999G	-42.85	2.4G	-42.59	2.49578G	-52.50	21.9236G	-42.81	1
2440MHz	Pass	2.44004G	4.83	-15.17	2.11592G	-54.30	2.39085G	-53.06	2.4835G	-54.96	2.49034G	-52.28	16.92376G	-43.00	1
2480MHz	Pass	2.48016G	7.77	-12.23	2.09359G	-54.68	2.3933G	-52.41	2.4835G	-51.75	2.48351G	-48.74	23.16935G	-42.54	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.4018G	3.67	-16.33	2.16498G	-54.98	2.39999G	-38.71	2.4G	-39.12	2.50197G	-52.29	24.90439G	-43.16	1
2440MHz	Pass	2.43987G	4.09	-15.91	2.11798G	-54.38	2.39872G	-52.69	2.4835G	-55.19	2.48689G	-52.55	16.57506G	-41.74	1
2480MHz	Pass	2.48016G	6.11	-13.89	2.12297G	-54.72	2.39377G	-53.34	2.4835G	-48.20	2.48351G	-48.60	16.2348G	-42.73	1













Summary

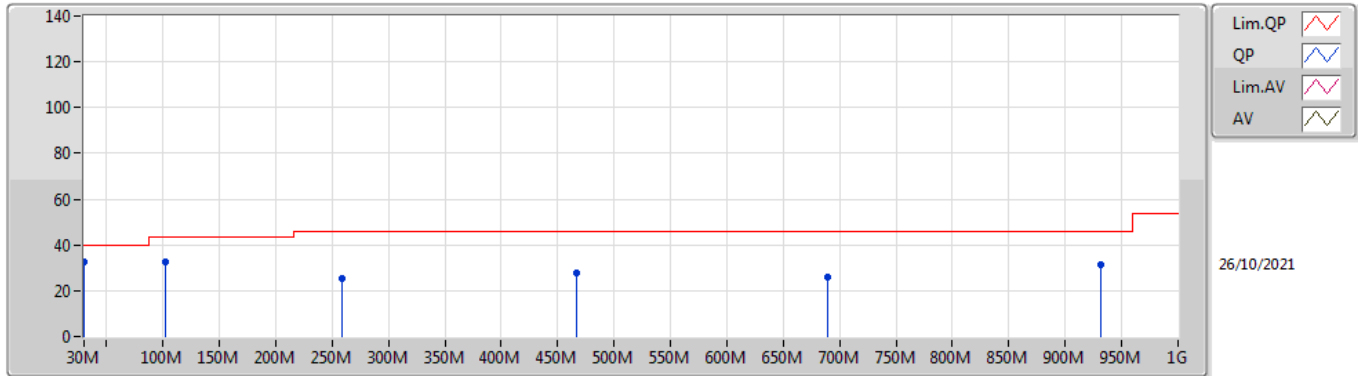
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	PK	196.84M	38.11	43.50	-5.39	3	Vertical	360	1.00	-



Result

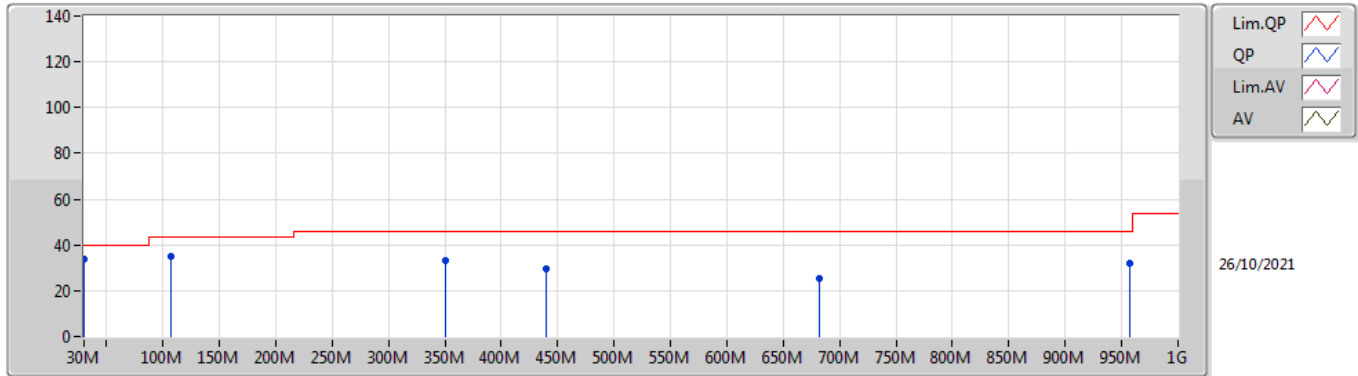
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	32.49	40.00	-7.51	3	Vertical	360	1.00	-
2440MHz	Pass	PK	101.78M	32.77	43.50	-10.73	3	Vertical	360	1.00	-
2440MHz	Pass	PK	258.92M	25.46	46.00	-20.54	3	Vertical	360	1.00	-
2440MHz	Pass	PK	466.5M	27.78	46.00	-18.22	3	Vertical	360	1.00	-
2440MHz	Pass	PK	689.6M	26.04	46.00	-19.96	3	Vertical	360	1.00	-
2440MHz	Pass	PK	932.1M	31.59	46.00	-14.41	3	Vertical	360	1.00	-
2440MHz	Pass	PK	107.6M	35.30	43.50	-8.20	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	350.1M	33.37	46.00	-12.63	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	439.34M	29.30	46.00	-16.70	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	681.84M	25.52	46.00	-20.48	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	957.32M	31.77	46.00	-14.23	3	Horizontal	0	1.00	-
2440MHz	Pass	QP	30.29M	33.69	40.00	-6.31	3	Horizontal	0	1.60	-
2440MHz	Pass	PK	41.64M	34.10	40.00	-5.90	3	Vertical	360	1.00	-
2440MHz	Pass	PK	196.84M	38.11	43.50	-5.39	3	Vertical	360	1.00	-
2440MHz	Pass	PK	346.22M	31.07	46.00	-14.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	565.44M	34.87	46.00	-11.13	3	Vertical	360	1.00	-
2440MHz	Pass	PK	643.04M	35.65	46.00	-10.35	3	Vertical	360	1.00	-
2440MHz	Pass	PK	932.1M	33.02	46.00	-12.98	3	Vertical	360	1.00	-
2440MHz	Pass	PK	76.56M	28.91	40.00	-11.09	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	198.78M	36.46	43.50	-7.04	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	348.16M	33.84	46.00	-12.16	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	435.46M	31.47	46.00	-14.53	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	643.04M	34.39	46.00	-11.61	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	957.32M	31.58	46.00	-14.42	3	Horizontal	0	1.00	-

BT-BR(1Mbps)
2440MHz_Adapter



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	32.49	40.00	-7.51	-12.86	3	Vertical	360	1.00	-	45.35	23.73	0.56	37.15
PK	101.78M	32.77	43.50	-10.73	-20.14	3	Vertical	360	1.00	-	52.91	15.51	0.98	36.63
PK	258.92M	25.46	46.00	-20.54	-15.62	3	Vertical	360	1.00	-	41.08	19.25	1.53	36.40
PK	466.5M	27.78	46.00	-18.22	-11.97	3	Vertical	360	1.00	-	39.75	22.63	2.14	36.74
PK	689.6M	26.04	46.00	-19.96	-8.88	3	Vertical	360	1.00	-	34.92	25.73	2.67	37.28
PK	932.1M	31.59	46.00	-14.41	-5.31	3	Vertical	360	1.00	-	36.90	29.20	3.06	37.57

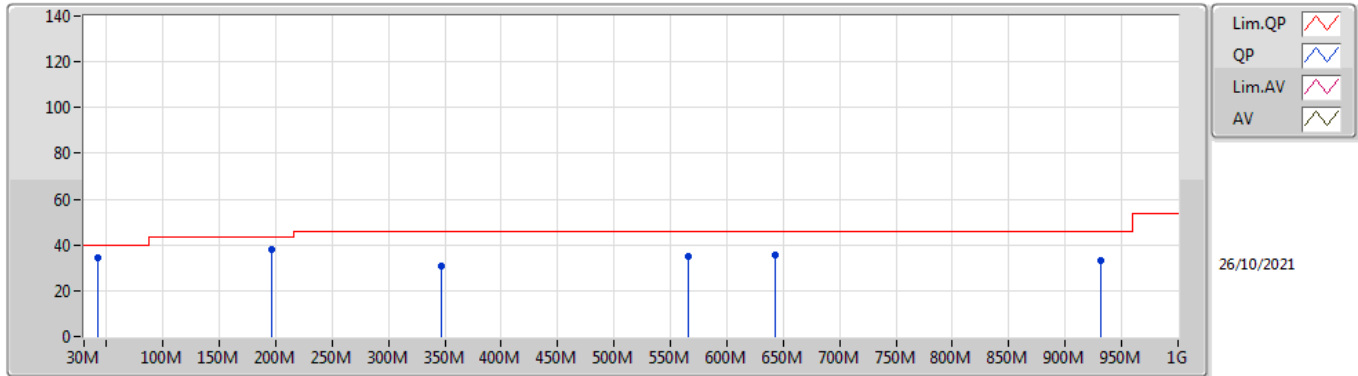
BT-BR(1Mbps)
2440MHz_Adapter



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	107.6M	35.30	43.50	-8.20	-19.63	3	Horizontal	0	1.00	-	54.93	16.00	1.01	36.64
PK	350.1M	33.37	46.00	-12.63	-15.17	3	Horizontal	0	1.00	-	48.54	19.59	1.77	36.53
PK	439.34M	29.30	46.00	-16.70	-12.40	3	Horizontal	0	1.00	-	41.70	22.15	2.06	36.61
PK	681.84M	25.52	46.00	-20.48	-8.98	3	Horizontal	0	1.00	-	34.50	25.64	2.66	37.28
PK	957.32M	31.77	46.00	-14.23	-4.25	3	Horizontal	0	1.00	-	36.02	30.14	3.11	37.50
QP	30.29M	33.69	40.00	-6.31	-13.00	3	Horizontal	0	1.60	-	46.69	23.58	0.57	37.15

BT-BR(1Mbps)

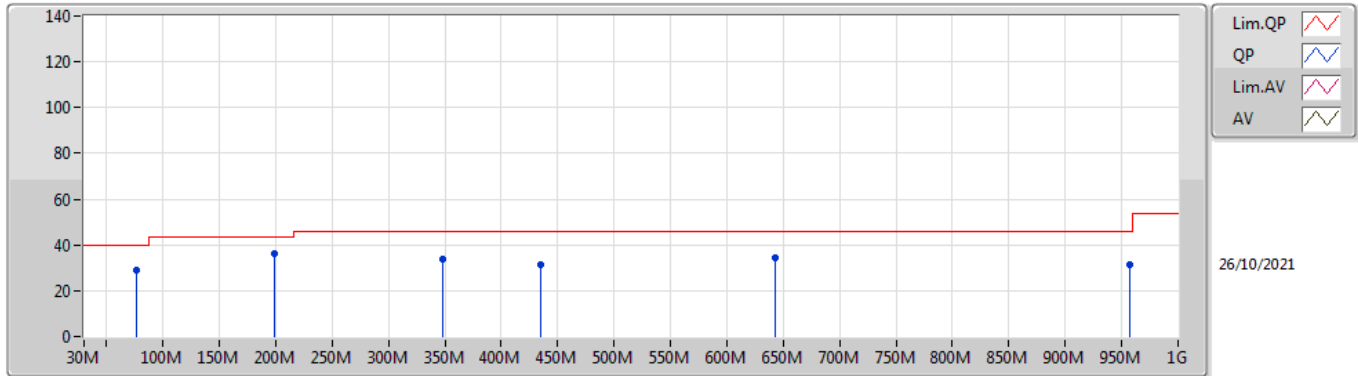
2440MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	41.64M	34.10	40.00	-5.90	-18.59	3	Vertical	360	1.00	-	52.69	17.73	0.75	37.07
PK	196.84M	38.11	43.50	-5.39	-20.80	3	Vertical	360	1.00	-	58.91	14.19	1.31	36.30
PK	346.22M	31.07	46.00	-14.93	-15.29	3	Vertical	360	1.00	-	46.36	19.47	1.76	36.52
PK	565.44M	34.87	46.00	-11.13	-9.43	3	Vertical	360	1.00	-	44.30	25.25	2.41	37.09
PK	643.04M	35.65	46.00	-10.35	-8.90	3	Vertical	360	1.00	-	44.55	25.73	2.60	37.23
PK	932.1M	33.02	46.00	-12.98	-5.31	3	Vertical	360	1.00	-	38.33	29.20	3.06	37.57

BT-BR(1Mbps)

2440MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	76.56M	28.91	40.00	-11.09	-23.90	3	Horizontal	0	1.00	-	52.81	12.14	0.87	36.91
PK	198.78M	36.46	43.50	-7.04	-20.69	3	Horizontal	0	1.00	-	57.15	14.27	1.32	36.28
PK	348.16M	33.84	46.00	-12.16	-15.23	3	Horizontal	0	1.00	-	49.07	19.53	1.77	36.53
PK	435.46M	31.47	46.00	-14.53	-12.41	3	Horizontal	0	1.00	-	43.88	22.16	2.04	36.61
PK	643.04M	34.39	46.00	-11.61	-8.90	3	Horizontal	0	1.00	-	43.29	25.73	2.60	37.23
PK	957.32M	31.58	46.00	-14.42	-4.25	3	Horizontal	0	1.00	-	35.83	30.14	3.11	37.50



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	PK	2.494G	58.49	74.00	-15.51	3	Vertical	360	1.37	-
BT-EDR(3Mbps)	Pass	PK	2.4978G	58.45	74.00	-15.55	3	Horizontal	355	1.14	-



Result

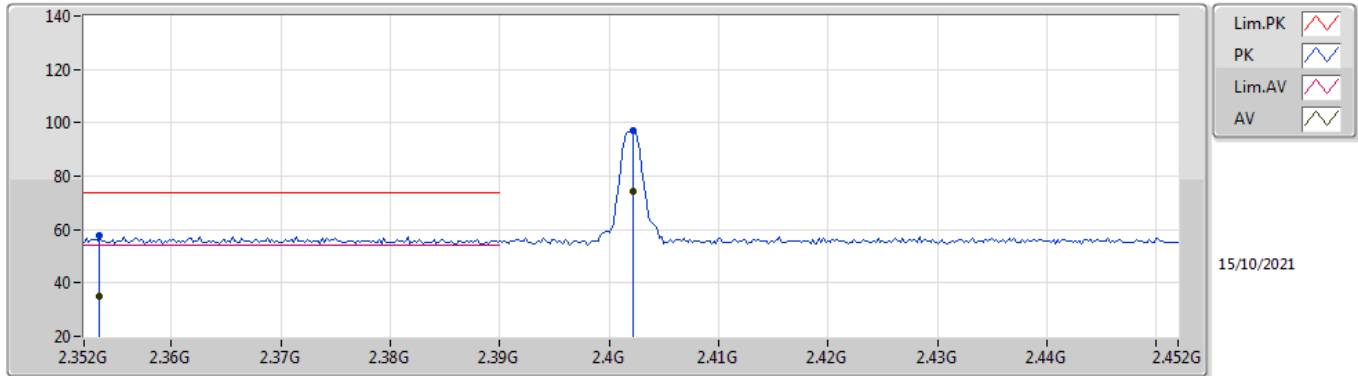
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3534G	35.07	54.00	-18.93	3	Vertical	31	1.41	-
2402MHz	Pass	AV	2.4022G	74.34	Inf	-Inf	3	Vertical	31	1.41	-
2402MHz	Pass	PK	2.3534G	57.57	74.00	-16.43	3	Vertical	31	1.41	-
2402MHz	Pass	PK	2.4022G	96.84	Inf	-Inf	3	Vertical	31	1.41	-
2402MHz	Pass	AV	2.3632G	37.54	54.00	-16.46	3	Horizontal	37	2.14	-
2402MHz	Pass	AV	2.4022G	81.87	Inf	-Inf	3	Horizontal	37	2.14	-
2402MHz	Pass	PK	2.3632G	57.04	74.00	-16.96	3	Horizontal	37	2.14	-
2402MHz	Pass	PK	2.4022G	104.37	Inf	-Inf	3	Horizontal	37	2.14	-
2402MHz	Pass	AV	4.8043G	27.77	54.00	-26.23	3	Vertical	23	1.66	-
2402MHz	Pass	PK	4.8043G	50.27	74.00	-23.73	3	Vertical	23	1.66	-
2402MHz	Pass	AV	4.80424G	26.78	54.00	-27.22	3	Horizontal	67	1.04	-
2402MHz	Pass	PK	4.80424G	49.28	74.00	-24.72	3	Horizontal	67	1.04	-
2440MHz	Pass	AV	2.3408G	34.71	54.00	-19.29	3	Vertical	360	1.37	-
2440MHz	Pass	AV	2.44G	78.76	Inf	-Inf	3	Vertical	360	1.37	-
2440MHz	Pass	AV	2.494G	35.99	54.00	-18.01	3	Vertical	360	1.37	-
2440MHz	Pass	PK	2.3408G	57.21	74.00	-16.79	3	Vertical	360	1.37	-
2440MHz	Pass	PK	2.44G	101.26	Inf	-Inf	3	Vertical	360	1.37	-
2440MHz	Pass	PK	2.494G	58.49	74.00	-15.51	3	Vertical	360	1.37	-
2440MHz	Pass	AV	2.3468G	35.60	54.00	-18.40	3	Horizontal	40	2.34	-
2440MHz	Pass	AV	2.44G	82.54	Inf	-Inf	3	Horizontal	40	2.34	-
2440MHz	Pass	AV	2.488G	35.18	54.00	-18.82	3	Horizontal	40	2.34	-
2440MHz	Pass	PK	2.3468G	58.10	74.00	-15.90	3	Horizontal	40	2.34	-
2440MHz	Pass	PK	2.44G	105.04	Inf	-Inf	3	Horizontal	40	2.34	-
2440MHz	Pass	PK	2.488G	57.68	74.00	-16.32	3	Horizontal	40	2.34	-
2440MHz	Pass	AV	4.87984G	28.49	54.00	-25.51	3	Vertical	25	1.74	-
2440MHz	Pass	PK	4.87984G	50.99	74.00	-23.01	3	Vertical	25	1.74	-
2440MHz	Pass	AV	4.87948G	26.74	54.00	-27.26	3	Horizontal	76	1.26	-
2440MHz	Pass	PK	4.87948G	49.24	74.00	-24.76	3	Horizontal	76	1.26	-
2480MHz	Pass	AV	2.4798G	82.13	Inf	-Inf	3	Vertical	360	1.00	-
2480MHz	Pass	AV	2.4854G	35.00	54.00	-19.00	3	Vertical	360	1.00	-
2480MHz	Pass	PK	2.4798G	104.63	Inf	-Inf	3	Vertical	360	1.00	-
2480MHz	Pass	PK	2.4854G	57.50	74.00	-16.50	3	Vertical	360	1.00	-
2480MHz	Pass	AV	2.4798G	82.47	Inf	-Inf	3	Horizontal	354	1.14	-
2480MHz	Pass	AV	2.4835G	34.87	54.00	-19.13	3	Horizontal	354	1.14	-
2480MHz	Pass	PK	2.4798G	104.97	Inf	-Inf	3	Horizontal	354	1.14	-
2480MHz	Pass	PK	2.4835G	57.37	74.00	-16.63	3	Horizontal	354	1.14	-
2480MHz	Pass	AV	4.95965G	28.07	54.00	-25.93	3	Vertical	8	1.58	-
2480MHz	Pass	PK	4.95965G	50.57	74.00	-23.43	3	Vertical	8	1.58	-
2480MHz	Pass	AV	4.95962G	27.40	54.00	-26.60	3	Horizontal	10	1.00	-
2480MHz	Pass	PK	4.95962G	49.90	74.00	-24.10	3	Horizontal	10	1.00	-
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3686G	35.31	54.00	-18.69	3	Vertical	31	1.43	-
2402MHz	Pass	AV	2.4018G	72.40	Inf	-Inf	3	Vertical	31	1.43	-
2402MHz	Pass	PK	2.3686G	57.81	74.00	-16.19	3	Vertical	31	1.43	-
2402MHz	Pass	PK	2.4018G	94.90	Inf	-Inf	3	Vertical	31	1.43	-
2402MHz	Pass	AV	2.3824G	35.03	54.00	-18.97	3	Horizontal	35	2.13	-
2402MHz	Pass	AV	2.4018G	80.11	Inf	-Inf	3	Horizontal	35	2.13	-
2402MHz	Pass	PK	2.3824G	57.53	74.00	-16.47	3	Horizontal	35	2.13	-
2402MHz	Pass	PK	2.4018G	102.61	Inf	-Inf	3	Horizontal	35	2.13	-
2402MHz	Pass	AV	4.80374G	26.79	54.00	-27.21	3	Vertical	22	1.66	-
2402MHz	Pass	PK	4.80374G	49.29	74.00	-24.71	3	Vertical	22	1.66	-
2402MHz	Pass	AV	4.80431G	24.98	54.00	-29.02	3	Horizontal	324	1.58	-
2402MHz	Pass	PK	4.80431G	47.48	74.00	-26.52	3	Horizontal	324	1.58	-
2440MHz	Pass	AV	2.3784G	34.60	54.00	-19.40	3	Vertical	360	1.38	-
2440MHz	Pass	AV	2.44G	77.08	Inf	-Inf	3	Vertical	360	1.38	-
2440MHz	Pass	AV	2.4835G	34.22	54.00	-19.78	3	Vertical	360	1.38	-
2440MHz	Pass	PK	2.3784G	57.10	74.00	-16.90	3	Vertical	360	1.38	-
2440MHz	Pass	PK	2.44G	99.58	Inf	-Inf	3	Vertical	360	1.38	-
2440MHz	Pass	PK	2.4835G	56.72	74.00	-17.28	3	Vertical	360	1.38	-
2440MHz	Pass	AV	2.3892G	34.56	54.00	-19.44	3	Horizontal	39	2.33	-



Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2440MHz	Pass	AV	2.44G	80.87	Inf	-Inf	3	Horizontal	39	2.33	-
2440MHz	Pass	AV	2.4928G	34.69	54.00	-19.31	3	Horizontal	39	2.33	-
2440MHz	Pass	PK	2.3892G	57.06	74.00	-16.94	3	Horizontal	39	2.33	-
2440MHz	Pass	PK	2.44G	103.37	Inf	-Inf	3	Horizontal	39	2.33	-
2440MHz	Pass	PK	2.4928G	57.19	74.00	-16.81	3	Horizontal	39	2.33	-
2440MHz	Pass	AV	4.88056G	26.89	54.00	-27.11	3	Vertical	22	1.50	-
2440MHz	Pass	PK	4.88056G	49.39	74.00	-24.61	3	Vertical	22	1.50	-
2440MHz	Pass	AV	4.88026G	25.86	54.00	-28.14	3	Horizontal	331	1.00	-
2440MHz	Pass	PK	4.88026G	48.36	74.00	-25.64	3	Horizontal	331	1.00	-
2480MHz	Pass	AV	2.4798G	80.45	Inf	-Inf	3	Vertical	348	1.00	-
2480MHz	Pass	AV	2.495G	34.95	54.00	-19.05	3	Vertical	348	1.00	-
2480MHz	Pass	PK	2.4798G	102.95	Inf	-Inf	3	Vertical	348	1.00	-
2480MHz	Pass	PK	2.495G	57.45	74.00	-16.55	3	Vertical	348	1.00	-
2480MHz	Pass	AV	2.4798G	81.44	Inf	-Inf	3	Horizontal	355	1.14	-
2480MHz	Pass	AV	2.4978G	35.95	54.00	-18.05	3	Horizontal	355	1.14	-
2480MHz	Pass	PK	2.4798G	103.94	Inf	-Inf	3	Horizontal	355	1.14	-
2480MHz	Pass	PK	2.4978G	58.45	74.00	-15.55	3	Horizontal	355	1.14	-
2480MHz	Pass	AV	4.95968G	27.67	54.00	-26.33	3	Vertical	6	1.59	-
2480MHz	Pass	PK	4.95968G	50.17	74.00	-23.83	3	Vertical	6	1.59	-
2480MHz	Pass	AV	4.95999G	25.98	54.00	-28.02	3	Horizontal	9	1.00	-
2480MHz	Pass	PK	4.95999G	48.48	74.00	-25.52	3	Horizontal	9	1.00	-

BT-BR(1Mbps)

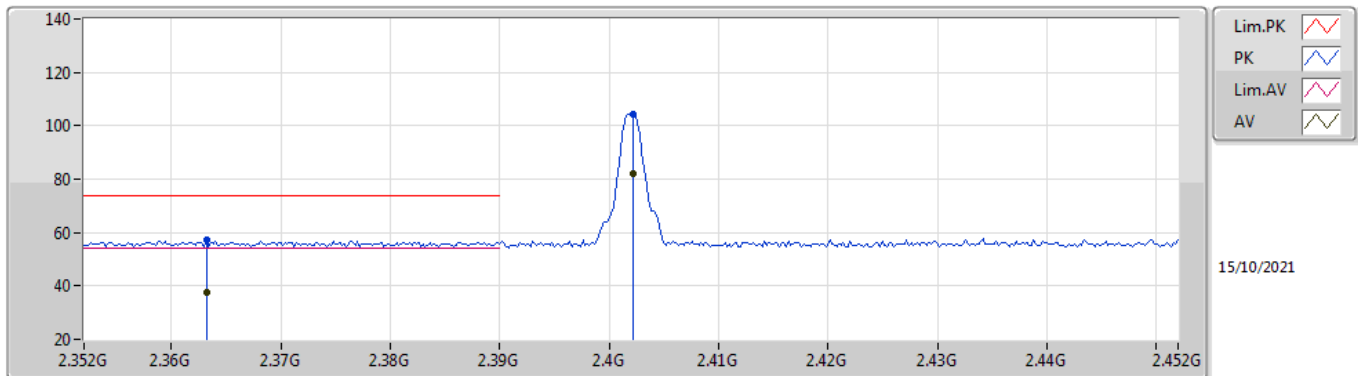
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3534G	35.07	54.00	-18.93	32.33	3	Vertical	31	1.41	-	2.74	27.79	4.54	-
AV	2.4022G	74.34	Inf	-Inf	32.18	3	Vertical	31	1.41	-	42.16	27.60	4.58	-
PK	2.3534G	57.57	74.00	-16.43	32.33	3	Vertical	31	1.41	-	25.24	27.79	4.54	-
PK	2.4022G	96.84	Inf	-Inf	32.18	3	Vertical	31	1.41	-	64.66	27.60	4.58	-

BT-BR(1Mbps)

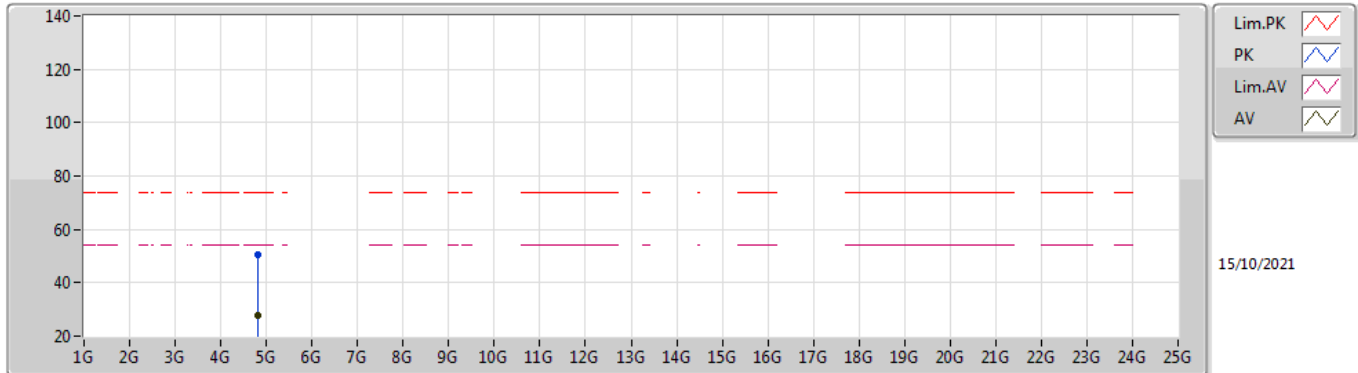
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3632G	37.54	54.00	-16.46	32.30	3	Horizontal	37	2.14	-	5.24	27.75	4.55	-
AV	2.4022G	81.87	Inf	-Inf	32.18	3	Horizontal	37	2.14	-	49.69	27.60	4.58	-
PK	2.3632G	57.04	74.00	-16.96	32.30	3	Horizontal	37	2.14	-	24.74	27.75	4.55	-
PK	2.4022G	104.37	Inf	-Inf	32.18	3	Horizontal	37	2.14	-	72.19	27.60	4.58	-

BT-BR(1Mbps)

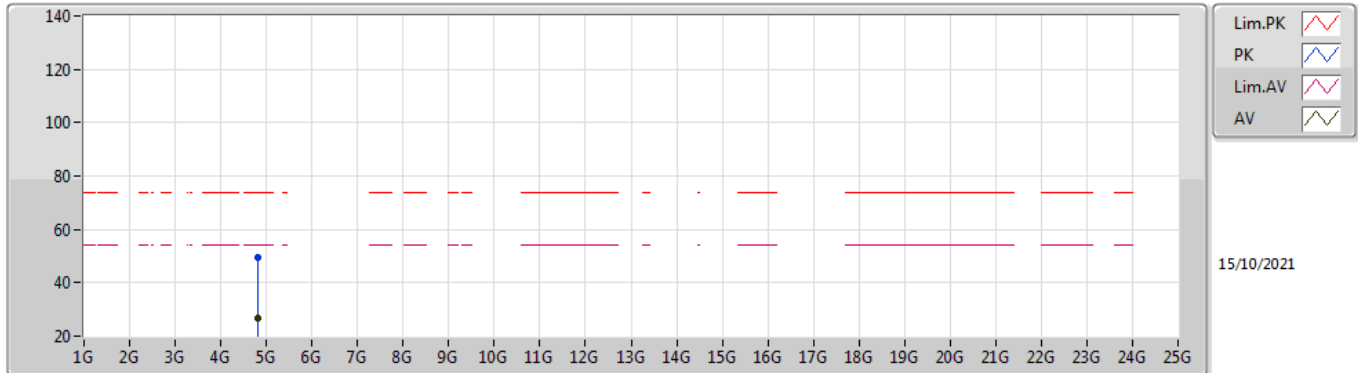
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.8043G	27.77	54.00	-26.23	2.95	3	Vertical	23	1.66	-	24.82	31.10	6.66	34.81
PK	4.8043G	50.27	74.00	-23.73	2.95	3	Vertical	23	1.66	-	47.32	31.10	6.66	34.81

BT-BR(1Mbps)

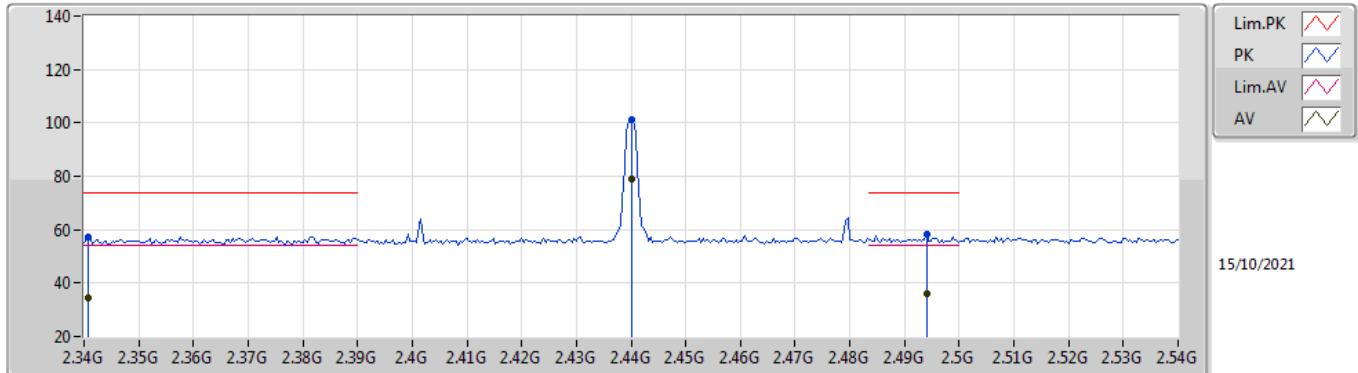
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80424G	26.78	54.00	-27.22	2.95	3	Horizontal	67	1.04	-	23.83	31.10	6.66	34.81
PK	4.80424G	49.28	74.00	-24.72	2.95	3	Horizontal	67	1.04	-	46.33	31.10	6.66	34.81

BT-BR(1Mbps)

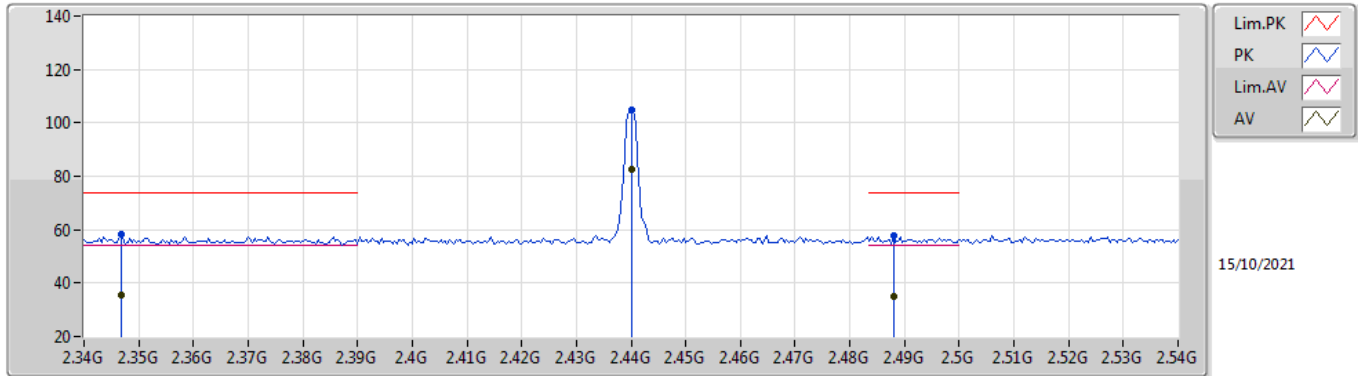
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3408G	34.71	54.00	-19.29	32.32	3	Vertical	360	1.37	-	2.39	27.80	4.52	-
AV	2.44G	78.76	Inf	-Inf	32.12	3	Vertical	360	1.37	-	46.64	27.52	4.60	-
AV	2.494G	35.99	54.00	-18.01	32.12	3	Vertical	360	1.37	-	3.87	27.50	4.62	-
PK	2.3408G	57.21	74.00	-16.79	32.32	3	Vertical	360	1.37	-	24.89	27.80	4.52	-
PK	2.44G	101.26	Inf	-Inf	32.12	3	Vertical	360	1.37	-	69.14	27.52	4.60	-
PK	2.494G	58.49	74.00	-15.51	32.12	3	Vertical	360	1.37	-	26.37	27.50	4.62	-

BT-BR(1Mbps)

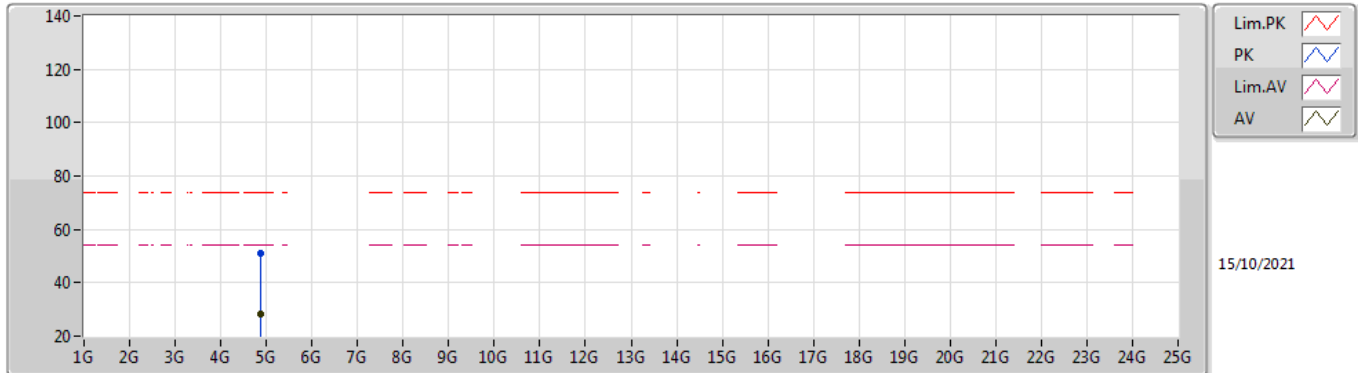
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3468G	35.60	54.00	-18.40	32.33	3	Horizontal	40	2.34	-	3.27	27.80	4.53	-
AV	2.44G	82.54	Inf	-Inf	32.12	3	Horizontal	40	2.34	-	50.42	27.52	4.60	-
AV	2.488G	35.18	54.00	-18.82	32.12	3	Horizontal	40	2.34	-	3.06	27.50	4.62	-
PK	2.3468G	58.10	74.00	-15.90	32.33	3	Horizontal	40	2.34	-	25.77	27.80	4.53	-
PK	2.44G	105.04	Inf	-Inf	32.12	3	Horizontal	40	2.34	-	72.92	27.52	4.60	-
PK	2.488G	57.68	74.00	-16.32	32.12	3	Horizontal	40	2.34	-	25.56	27.50	4.62	-

BT-BR(1Mbps)

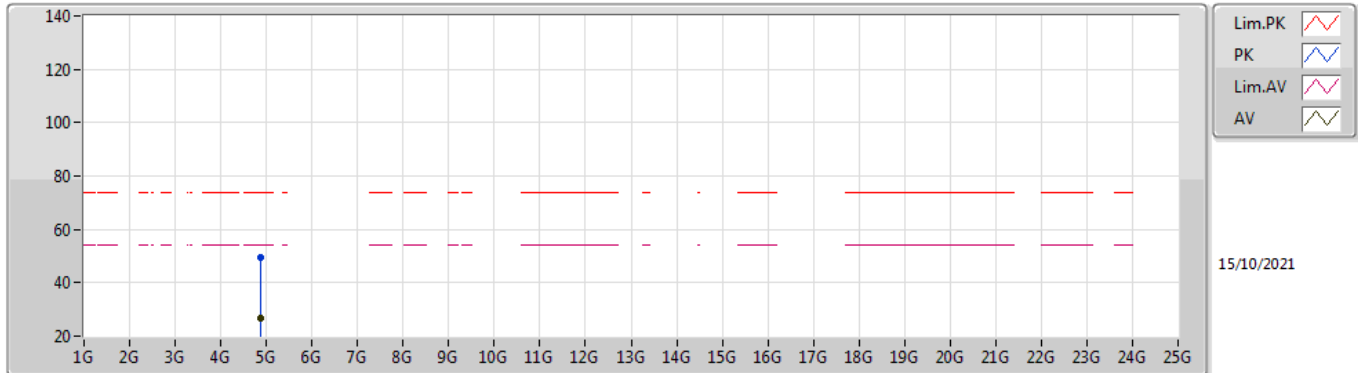
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87984G	28.49	54.00	-25.51	3.03	3	Vertical	25	1.74	-	25.46	31.10	6.72	34.79
PK	4.87984G	50.99	74.00	-23.01	3.03	3	Vertical	25	1.74	-	47.96	31.10	6.72	34.79

BT-BR(1Mbps)

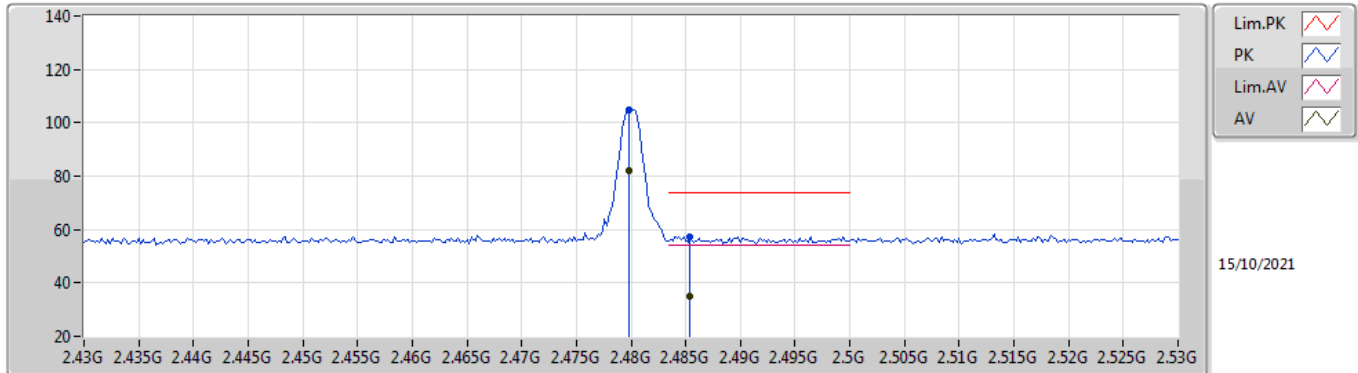
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87948G	26.74	54.00	-27.26	3.03	3	Horizontal	76	1.26	-	23.71	31.10	6.72	34.79
PK	4.87948G	49.24	74.00	-24.76	3.03	3	Horizontal	76	1.26	-	46.21	31.10	6.72	34.79

BT-BR(1Mbps)

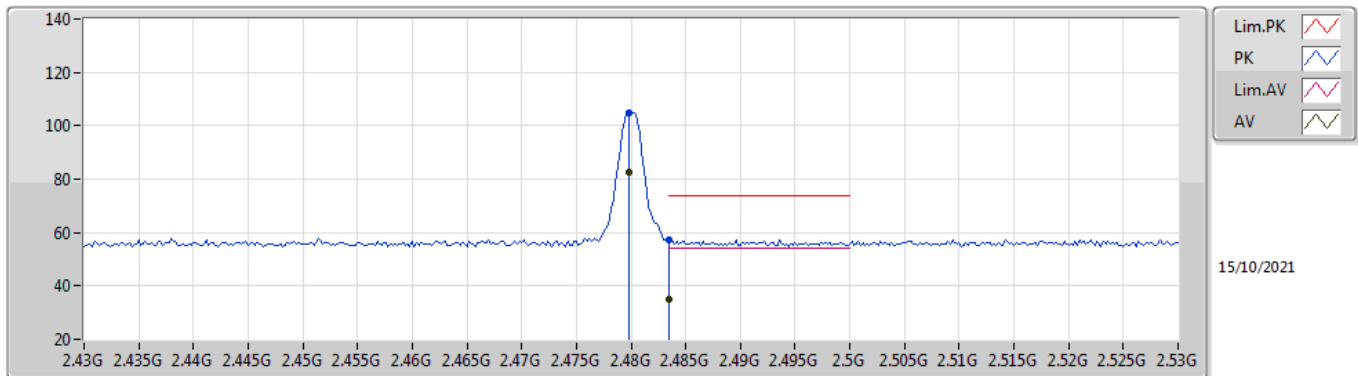
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	82.13	Inf	-Inf	32.11	3	Vertical	360	1.00	-	50.02	27.50	4.61	-
AV	2.4854G	35.00	54.00	-19.00	32.11	3	Vertical	360	1.00	-	2.89	27.50	4.61	-
PK	2.4798G	104.63	Inf	-Inf	32.11	3	Vertical	360	1.00	-	72.52	27.50	4.61	-
PK	2.4854G	57.50	74.00	-16.50	32.11	3	Vertical	360	1.00	-	25.39	27.50	4.61	-

BT-BR(1Mbps)

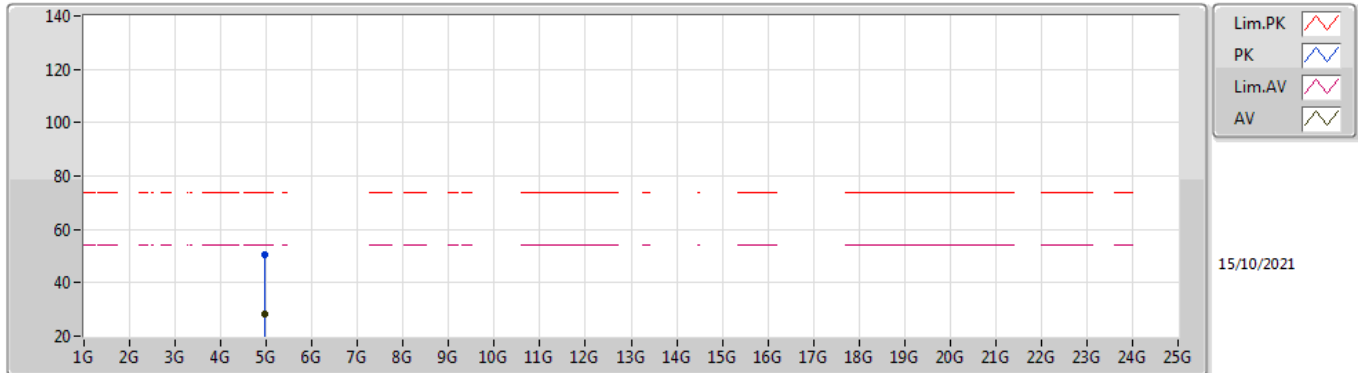
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	82.47	Inf	-Inf	32.11	3	Horizontal	354	1.14	-	50.36	27.50	4.61	-
AV	2.4835G	34.87	54.00	-19.13	32.11	3	Horizontal	354	1.14	-	2.76	27.50	4.61	-
PK	2.4798G	104.97	Inf	-Inf	32.11	3	Horizontal	354	1.14	-	72.86	27.50	4.61	-
PK	2.4835G	57.37	74.00	-16.63	32.11	3	Horizontal	354	1.14	-	25.26	27.50	4.61	-

BT-BR(1Mbps)

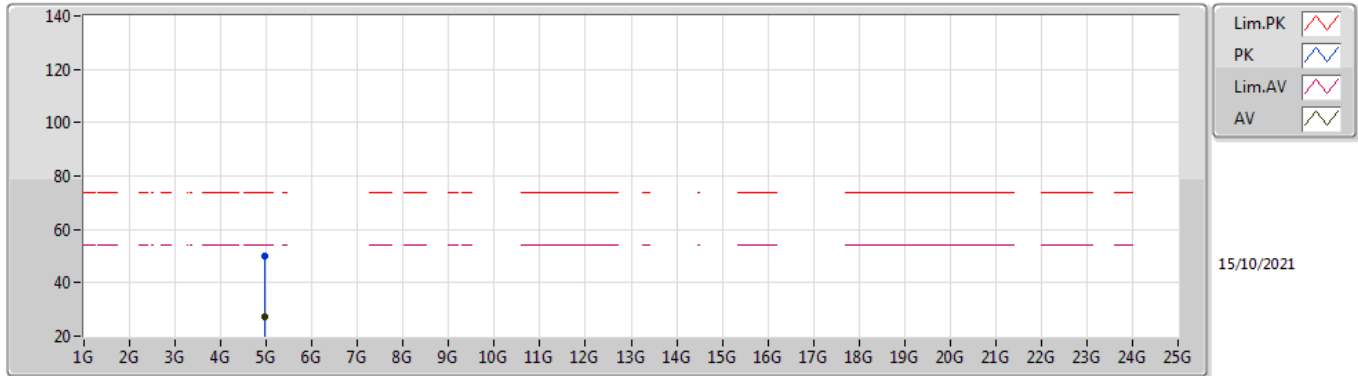
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95965G	28.07	54.00	-25.93	3.35	3	Vertical	8	1.58	-	24.72	31.34	6.78	34.77
PK	4.95965G	50.57	74.00	-23.43	3.35	3	Vertical	8	1.58	-	47.22	31.34	6.78	34.77

BT-BR(1Mbps)

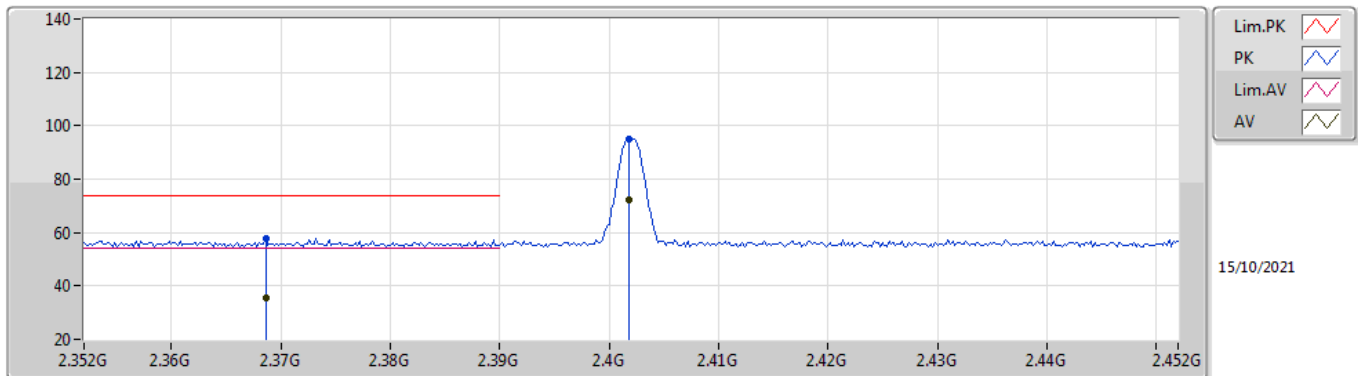
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95962G	27.40	54.00	-26.60	3.35	3	Horizontal	10	1.00	-	24.05	31.34	6.78	34.77
PK	4.95962G	49.90	74.00	-24.10	3.35	3	Horizontal	10	1.00	-	46.55	31.34	6.78	34.77

BT-EDR(3Mbps)

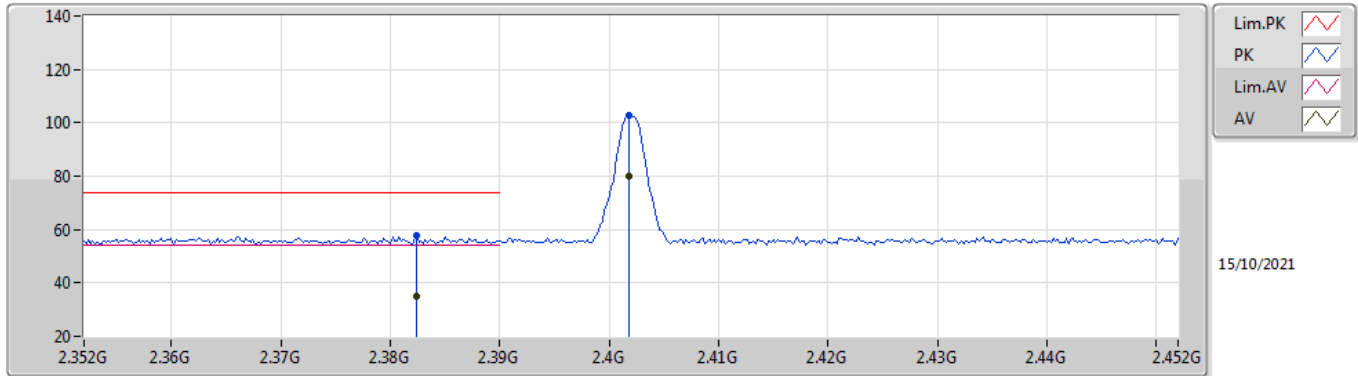
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3686G	35.31	54.00	-18.69	32.28	3	Vertical	31	1.43	-	3.03	27.73	4.55	-
AV	2.4018G	72.40	Inf	-Inf	32.18	3	Vertical	31	1.43	-	40.22	27.60	4.58	-
PK	2.3686G	57.81	74.00	-16.19	32.28	3	Vertical	31	1.43	-	25.53	27.73	4.55	-
PK	2.4018G	94.90	Inf	-Inf	32.18	3	Vertical	31	1.43	-	62.72	27.60	4.58	-

BT-EDR(3Mbps)

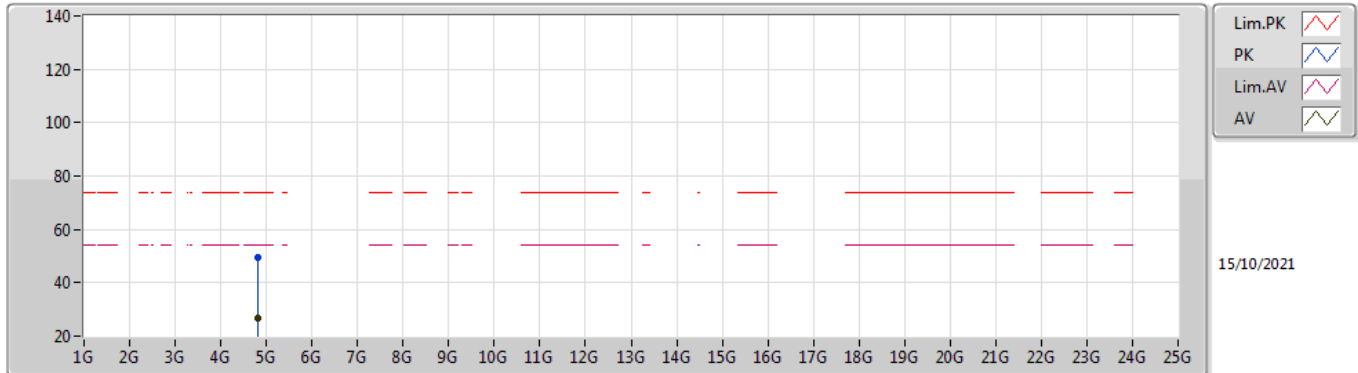
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3824G	35.03	54.00	-18.97	32.23	3	Horizontal	35	2.13	-	2.80	27.67	4.56	-
AV	2.4018G	80.11	Inf	-Inf	32.18	3	Horizontal	35	2.13	-	47.93	27.60	4.58	-
PK	2.3824G	57.53	74.00	-16.47	32.23	3	Horizontal	35	2.13	-	25.30	27.67	4.56	-
PK	2.4018G	102.61	Inf	-Inf	32.18	3	Horizontal	35	2.13	-	70.43	27.60	4.58	-

BT-EDR(3Mbps)

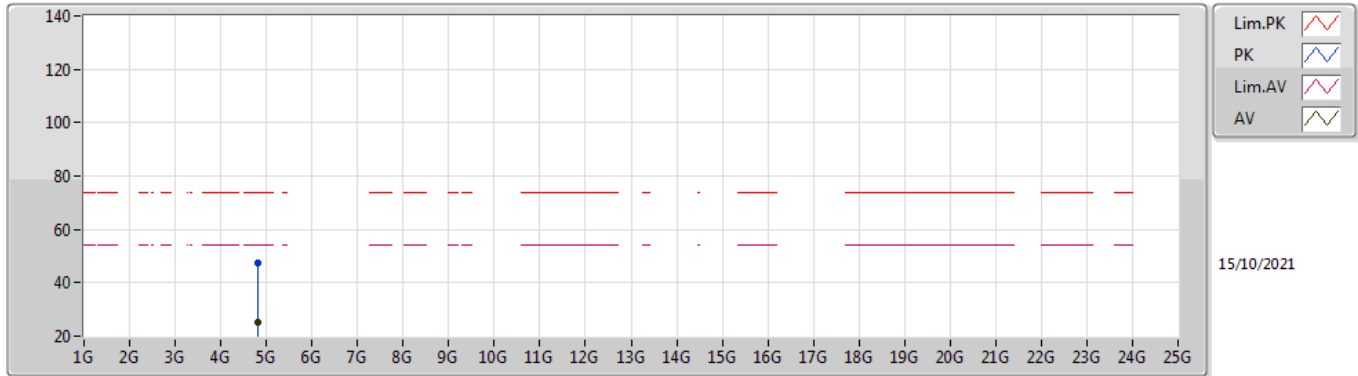
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80374G	26.79	54.00	-27.21	2.95	3	Vertical	22	1.66	-	23.84	31.10	6.66	34.81
PK	4.80374G	49.29	74.00	-24.71	2.95	3	Vertical	22	1.66	-	46.34	31.10	6.66	34.81

BT-EDR(3Mbps)

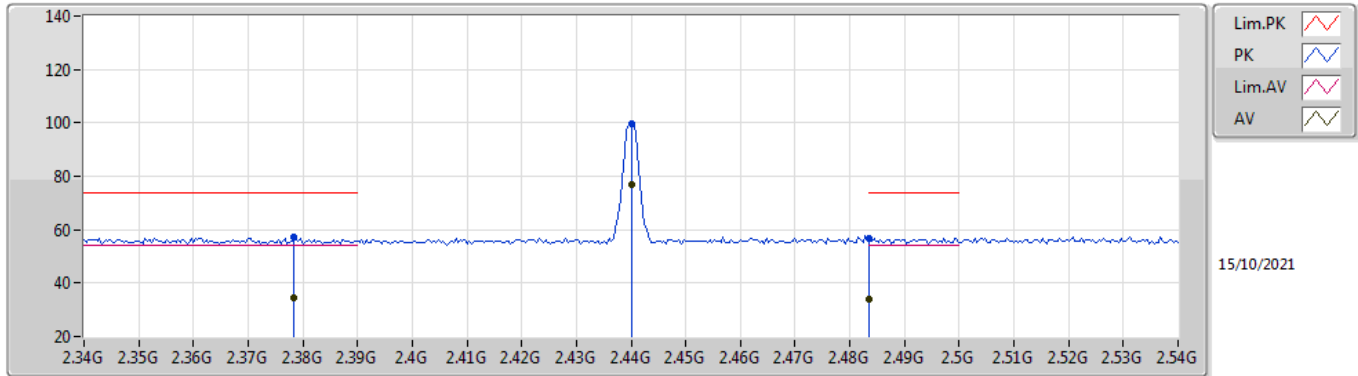
2402MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80431G	24.98	54.00	-29.02	2.95	3	Horizontal	324	1.58	-	22.03	31.10	6.66	34.81
PK	4.80431G	47.48	74.00	-26.52	2.95	3	Horizontal	324	1.58	-	44.53	31.10	6.66	34.81

BT-EDR(3Mbps)

2440MHz_TX

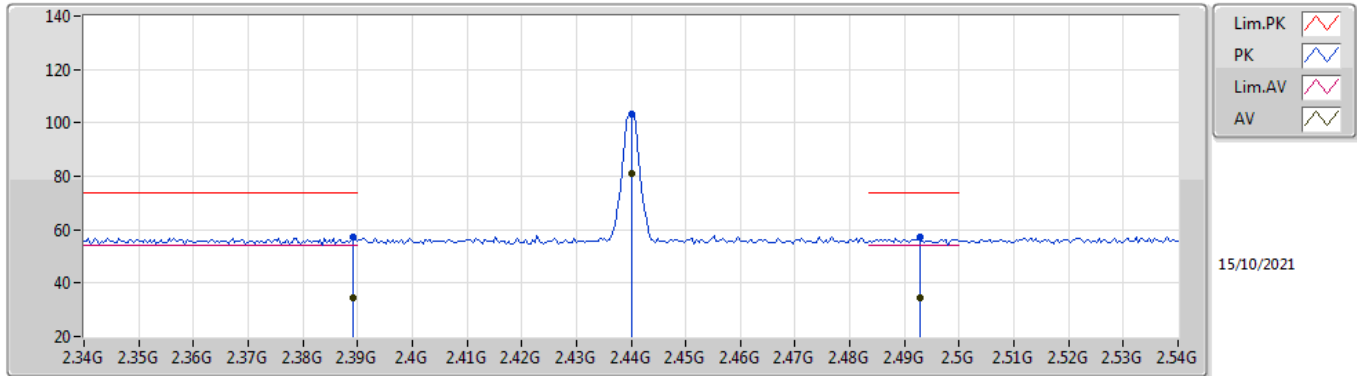


15/10/2021

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3784G	34.60	54.00	-19.40	32.25	3	Vertical	360	1.38	-	2.35	27.69	4.56	-
AV	2.44G	77.08	Inf	-Inf	32.12	3	Vertical	360	1.38	-	44.96	27.52	4.60	-
AV	2.4835G	34.22	54.00	-19.78	32.11	3	Vertical	360	1.38	-	2.11	27.50	4.61	-
PK	2.3784G	57.10	74.00	-16.90	32.25	3	Vertical	360	1.38	-	24.85	27.69	4.56	-
PK	2.44G	99.58	Inf	-Inf	32.12	3	Vertical	360	1.38	-	67.46	27.52	4.60	-
PK	2.4835G	56.72	74.00	-17.28	32.11	3	Vertical	360	1.38	-	24.61	27.50	4.61	-

BT-EDR(3Mbps)

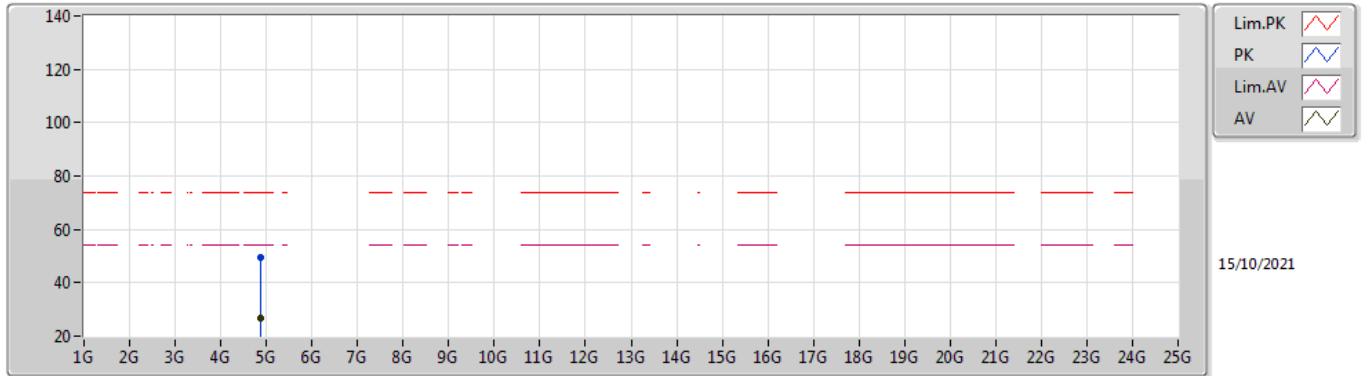
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3892G	34.56	54.00	-19.44	32.21	3	Horizontal	39	2.33	-	2.35	27.64	4.57	-
AV	2.44G	80.87	Inf	-Inf	32.12	3	Horizontal	39	2.33	-	48.75	27.52	4.60	-
AV	2.4928G	34.69	54.00	-19.31	32.12	3	Horizontal	39	2.33	-	2.57	27.50	4.62	-
PK	2.3892G	57.06	74.00	-16.94	32.21	3	Horizontal	39	2.33	-	24.85	27.64	4.57	-
PK	2.44G	103.37	Inf	-Inf	32.12	3	Horizontal	39	2.33	-	71.25	27.52	4.60	-
PK	2.4928G	57.19	74.00	-16.81	32.12	3	Horizontal	39	2.33	-	25.07	27.50	4.62	-

BT-EDR(3Mbps)

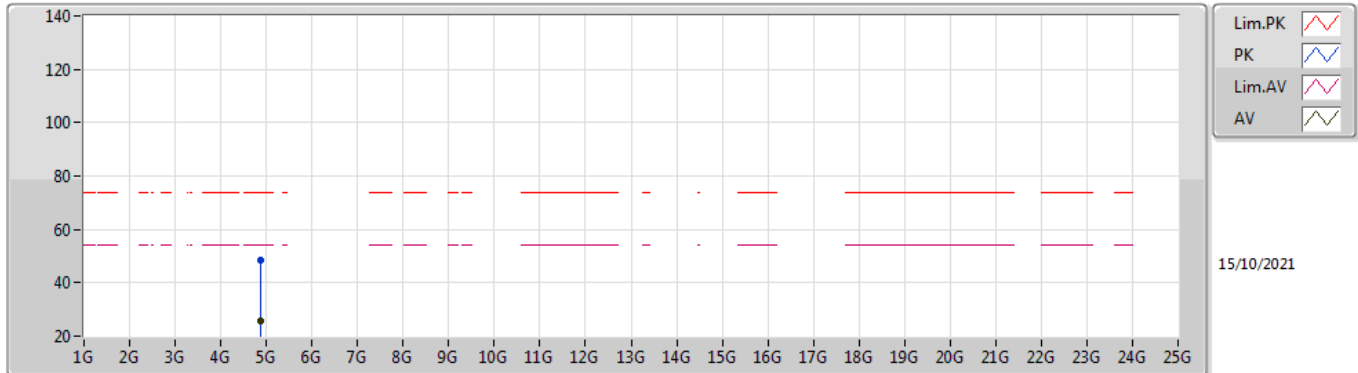
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88056G	26.89	54.00	-27.11	3.03	3	Vertical	22	1.50	-	23.86	31.10	6.72	34.79
PK	4.88056G	49.39	74.00	-24.61	3.03	3	Vertical	22	1.50	-	46.36	31.10	6.72	34.79

BT-EDR(3Mbps)

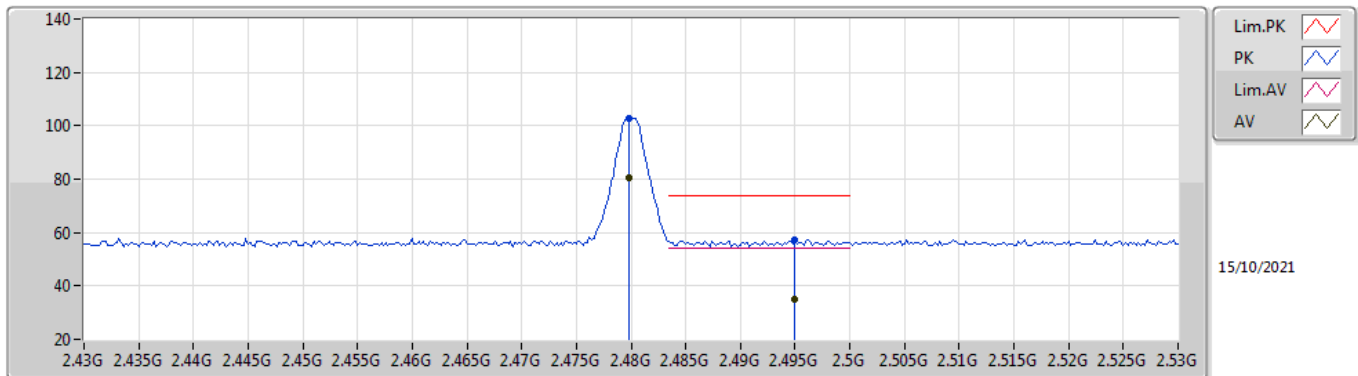
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88026G	25.86	54.00	-28.14	3.03	3	Horizontal	331	1.00	-	22.83	31.10	6.72	34.79
PK	4.88026G	48.36	74.00	-25.64	3.03	3	Horizontal	331	1.00	-	45.33	31.10	6.72	34.79

BT-EDR(3Mbps)

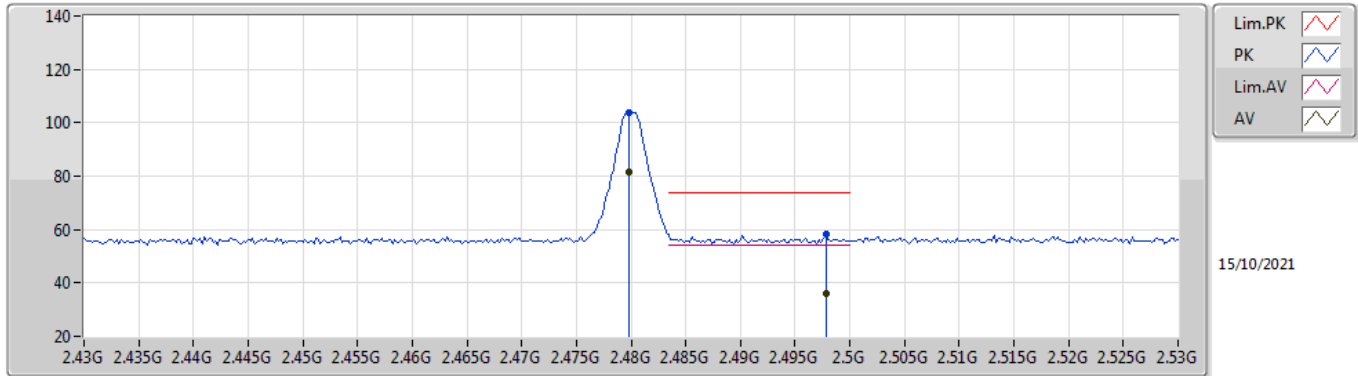
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	80.45	Inf	-Inf	32.11	3	Vertical	348	1.00	-	48.34	27.50	4.61	-
AV	2.495G	34.95	54.00	-19.05	32.12	3	Vertical	348	1.00	-	2.83	27.50	4.62	-
PK	2.4798G	102.95	Inf	-Inf	32.11	3	Vertical	348	1.00	-	70.84	27.50	4.61	-
PK	2.495G	57.45	74.00	-16.55	32.12	3	Vertical	348	1.00	-	25.33	27.50	4.62	-

BT-EDR(3Mbps)

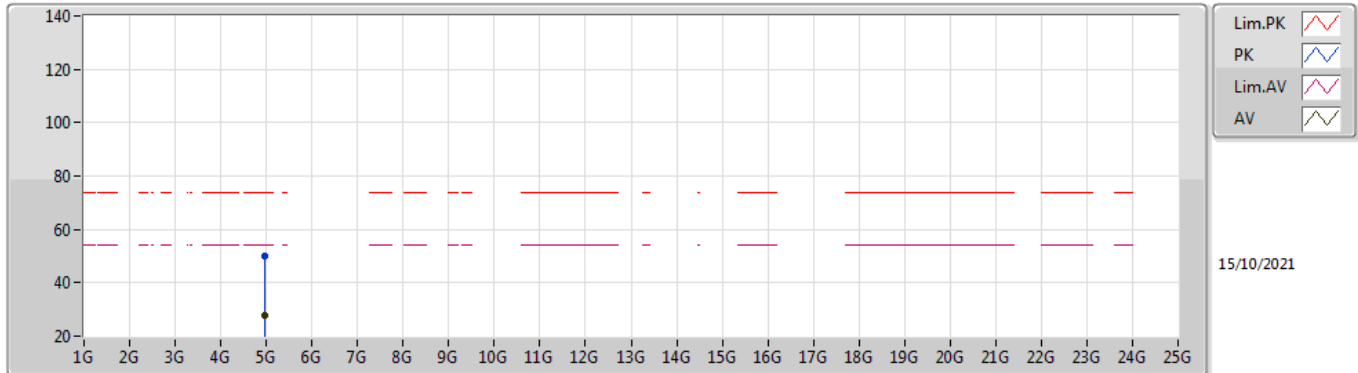
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	81.44	Inf	-Inf	32.11	3	Horizontal	355	1.14	-	49.33	27.50	4.61	-
AV	2.4978G	35.95	54.00	-18.05	32.12	3	Horizontal	355	1.14	-	3.83	27.50	4.62	-
PK	2.4798G	103.94	Inf	-Inf	32.11	3	Horizontal	355	1.14	-	71.83	27.50	4.61	-
PK	2.4978G	58.45	74.00	-15.55	32.12	3	Horizontal	355	1.14	-	26.33	27.50	4.62	-

BT-EDR(3Mbps)

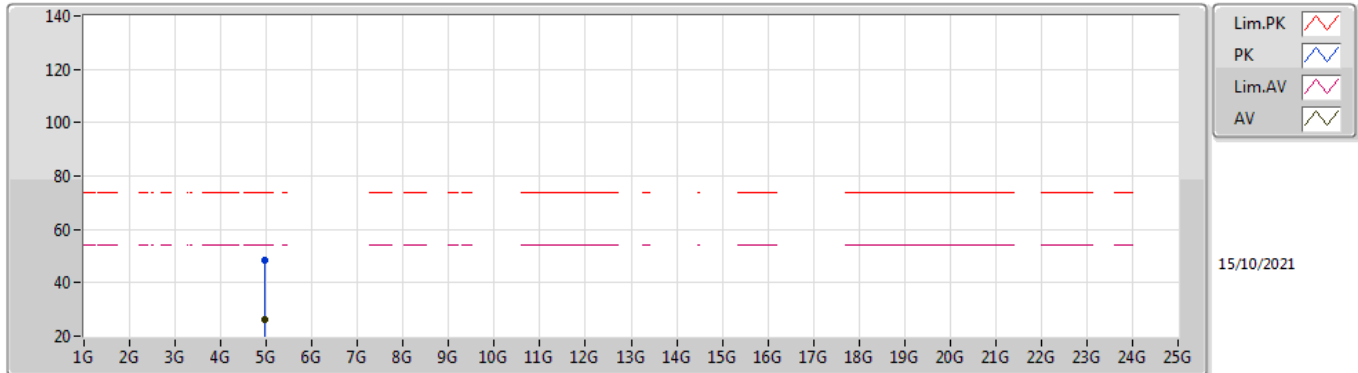
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95968G	27.67	54.00	-26.33	3.35	3	Vertical	6	1.59	-	24.32	31.34	6.78	34.77
PK	4.95968G	50.17	74.00	-23.83	3.35	3	Vertical	6	1.59	-	46.82	31.34	6.78	34.77

BT-EDR(3Mbps)

2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95999G	25.98	54.00	-28.02	3.35	3	Horizontal	9	1.00	-	22.63	31.34	6.78	34.77
PK	4.95999G	48.48	74.00	-25.52	3.35	3	Horizontal	9	1.00	-	45.13	31.34	6.78	34.77